

Amateur Radio

Vol. 50, No. 5 MAY 1982

Registered by Australia Post — Publication No. VBH 0563



JOURNAL OF THE WIRELESS INSTITUTE OF AUSTRALIA



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MAYDAY — A Story of Survival on the Nullarbor**

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amateur radio

VOL. 50, No. 5
MAY 1982

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Acknowledgement may not be made unless
specially requested. All important items
should be sent by certified mail. The editor
reserves the right to edit all material, in-
cluding Letters to the Editor and Hamads,
and reserves the right to refuse acceptance
of any material, without specifying a reason.
Material should be sent direct to P.O. Box
150, Toorak, Vic. 3142, by the 28th of the
second month preceding publication. Phone:
(03) 528 5982. Hamads should be sent direct
to the same address by the 1st of the month
preceding publication.

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goods.

Production: BETKEN PRODUCTIONS
5 Masefield Avenue, Mooroolbark, 3108

Typesetting: MUELLER GRAPHICS PTY. LTD.
18 Levenswell Road, Moorabbin, 3168
Tel.: (03) 560 5111

Laser Scanned Colour Separations by:
QUADRICOLOUR INDUSTRIES PTY. LTD.,
Graphic Division
22-24 Glenvale Crescent, Mulgrave, 3170
Tel.: (03) 560 2222

Printers: WAVERLEY OFFSET PUBLISHING
GROUP
Geddes Street, Mulgrave 3170
Tel.: (03) 533 0282

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FRONT COVER

Jeff VK2BYY, pictured at the main console of VK2WI for a Sunday morning broadcast.

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WIA NEWS

FEDERAL CONVENTION

By the time most of you read this the 46th Annual Federal Convention will be over. Many observers miss the point that in accordance with Company Law and the Constitution, an annual meeting has to be held. It is also the only forum for discussing Australia-wide matters of concern and interest to the amateur service. The subjects for debate and decision come from the Divisions and from the Executive. These originate from members of the Institute.

If critics of the work carried out by the Federal Convention would take the trouble to do their homework before committing pen to paper, they would have noted that planning for the future of the amateur service and of the Institute both in the short and the long term was discussed at length at the 1981 Convention. A draft plan was drawn up for completion of the fine details during the year so that it may be finalised at the 1982 Convention; subject to debate.

A number of further Agenda Items have been submitted for discussion including a proposal for lowering the age for obtaining

full or limited licences to 14 years, that repeaters may optionally emit beacon ident, simplification of the RST system, WICEN frequencies on the new band/s, standardising pensioner grade conditions and that guidelines may be desirable for WICEN as affected by Third Party Traffic, phone patching and autopatching.

8m BAND

The relevant part of letters despatched by the Minister of Communications to amateur enquiries about 80-82 MHz are quoted for information:—

"The television industry, and the Government, have recently decided to support the continued use of the VHF band for the main television broadcasting stations and as a result, Channel 0 will continue to be used.

Nevertheless, my Department is actively studying the basis on which amateurs may be permitted to make use of the band 80-82 MHz for the purpose you have outlined.

A decision is pending, and the outcome will be reflected in the Australian frequency table of allocations which will be published shortly."



QSP

CB

The Sept. '81 issue of the I.T.U.'s Telecommunication Journal contains broad details of CB regulations and usage in various countries. The following is a very brief extract in respect of countries who do permit CB listing in this order—frequency MHz, channel's, emissions, max. output power. W. Germany: 26.96-27.28, 22, FM, 0.5W. Argentina: 26.965-27.226, 8 + others, A3, 5W. Australia: 27.12, 12, AM/FM, 0.5W. Barbados: 26.965-27.406, 40, AM, 4W/12W p.p.s. Belgium: 27 MHz band, 22, AM/FM, 0.5W. Bermuda similar to Barbados. Botswana: 26.965-27.406, 40, AM, 4W/12W p.p.s. Canada: 26.960-27.410, 40, AM, 4W/12W p.p.s. Costa Rica: 26.965-27.015 and 49.0, 5W. Denmark: 26.965-27.225, 22, A3/F3, 9.5W/0.1W integral antenna. Egypt: 26.965-27.405, A3A, 5W. El Salvador—similar to Barbados and ECUADOR. Ecuador: 27 MHz, 40, AM, 5W. Fiji: 27 MHz, 36, AM/FM, 1W on land/2.5W marine. Finland: 26.965-27.230, 23, A3, 5W. France: 26.96-27.28, 22, FM, 2W/0.4W integral antenna. Greece: 26.965-27.406, 15, 6A3, 5W. Hungary: 26.960-27.075, 65, AM, 3W. India: 27.120, 9, 6A3, 100mW. Indonesia: 26.96-27.41, 40, AM, 4W/12W. Israel: 26.97-27.27, A3, 100mW. In Italy: 26.96-27.28, 23, AM/FM, 5W. Jamaica—similar to Barbados. Kenya: 27.003-27.275, 40, A3, 1W. Kuwait: 26.96-27.41, 40, AM, 4W. Maldives: 27 MHz band, AM/FM, 10W. Mexico: 26.96-27.41, 40, A3, 5W. Norway: 27.12, 23, AM/FM, 100mW. New Zealand: 26.925-26.75, 14, A3, 2W. Netherlands: 26.965-27.225, 22, F3, 0.5W. Portugal: 26.96-27.41, 40, AM/FM, 5W. Senegal: 27.05-27.225, 24, AM/FM, 3W. Singapore: 27.12, 300mW. Rep South Africa: 27.168-27.275, 9, AM, 4W/12W p.p.s. Sweden: 26.95-27.25, 24, AM/FM, 3.5W. Switzerland—similar to S. Africa. Tanzania: 27-27.28, 23, 6A3, 1W. Thailand: 26.965-27.406, 40, AM, 5-0W. Togo: 26.96-27.28, 31, AM/FM, 9.1-3W. Uruguay: 26.96-27.28, 23, AM, 5W. U.S.A.

REPEATER RESPONSIBILITIES

In the USA regulations: "Part 97 stands unambiguously for the proposition that a licensee of a repeater station in the Amateur Radio Service is responsible for the content of the repeater station's transmissions." A petition for rulemaking that repeater licensees be responsible for maintaining only the technical standards of the repeater was dated, QST, Jan. 1982.

EMISSION DESIGNATIONS

In QST, Jan. '82, it is noted that the FCC in the USA proposes the use domestically of the new system of emission designations adopted by WARC '79. Comments were sought concerning the use of old designations such as A3 and F3 in favour of the new J3E and F3E. It was pointed out that the new system has three mandatory symbols as follows: (1) type of modulation in the main carrier, (2) nature of signal(s) modulating the main carrier, and (3) type of information to be transmitted. The ARRL agreed with the FCC that the required use of the new system should be limited to the three mandatory classification symbols and that it should not be extended either to the optional symbols or to the band width designations at this time. Implementing the new system, the ARRL stated, will not be a trivial matter. (See AR, September, 1981, page 26.)

EXPEDITION FINANCING

"Used to be you went on a DXpedition and paid for it yourself for you just didn't go. What with the cost of major world events these days, many prospective journeys require aid in getting there and back. The National Capital DX Association takes a stand that contributions, financial aid, will be considered after the conclusion of a responsible tour. More details from KJKA, now president of the club." QST, Jan. 1982.

NEW BANDS — USA BEACONS

The FCC in the USA authorised the use of experimental radio beacons in each of the three new WARC bands (not yet authorised for use in the USA). These beacons will be 3W ERP on 10140 KHz and later on 19108 and 24930 KHz increasing to 30W at a future time. Reports and data from WAMS of Florida, Jan. 82 QST.

THAT VEC AND CRL

According to Canadian News in Jan. '82 QST VEC call signs will be reserved for amateur stations on ships that work primarily out of Canadian waters. Amateur stations on ships that work primarily in Canadian waters will be operated as mobile stations. Current CRL membership is stated to be 6000.

NOT FOR YOU

"Amateurs are often critical of operators in other services who operate outside their authorised bands; let's not expose ourselves to the same criticism." Jan. '82 QST League Lines.

FAX AND SETV

USA "operators holding a General Class or higher licence (will be allowed) to use facsimile and SETV on all the HF bands." QST, Jan. 1982.

CANADA — CUSTOMS

In the November 1981 Canadian budget "Customs Tariff Item 4453-4-2 was reworded to permit duty free entry of amateur transmitters, receivers, transceivers and related equipment with provisions for WARC bands or with general-coverage receive. The item was not expanded to include antennas, presumably to protect Canadian companies that do manufacture these." QST, Jan. 1982.



QSP



ROYAL NEW ZEALAND AIR FORCE

TELEPHONE: WEI 3000 Ext. 886

No. 5 Squadron
RNZAF Base Auckland
Air Force Post Office
Whenuapai
AUCKLAND

16th February, 1982

Dear Sir,

I was the Air Electronics Officer (the communications and sensor supervisor) on KIWI 865, the first of the search and rescue P3 Orions of the RNZAF sent to search for the distressed yacht CYN SAN on 30 January 1982.

Throughout my six hours on the radios, yourself and your fellow hams on 14335 kHz both in Australia and New Zealand, displayed a level of co-operation and dedication with which you should feel justly proud. Without your assistance our job of finding CYN SAN would have been very much more difficult, indeed, without your organisation we would not even have known the vessel was in distress until long after she was totally lost. The South Pacific is a very large area to search without a reasonable starting point so we may never have been able to bring the search to a successful conclusion.

For your information CYN SAN was eventually found some 250 miles south-west of her originally reported position and was finally towed to port in Noumea by the French Navy.

Thank you again for your valuable assistance.

(B. J. GODWIN)
Flight Lieutenant
AE Leader 5 Squadron

This is yet another example of thanks extended to amateurs for their assistance in emergencies — please see AR, September 1981, page 4.

PETER WOLFENDEN VK3KAU
Federal President

"Mayday"

Alan Campbell-Drury VK3CD
10 Colchester Drive, East Dencaster 3109

Earlier this year, in near mid century heat, amateur radio and net operation kept a lone traveller company and probably saved a disastrous situation. This story was written as a tribute to the amateur radio service and the South Australian Police.

It was on January 2nd when things started to go wrong.

The trip had been planned alone, the purpose being to get into the Great Victorian Desert, north of the Nullarbor Plain, where the late Daisy Bates, CBE, had spent much of her lifetime living with and caring for a wonderful dozen of Aborigines.

The legendary late Daisy Bates was born in Tipperary, Ireland in 1861 and died in Adelaide in 1951. From the early 1900's she devoted herself to the study of Aboriginal languages, of which she recorded 188 and Aboriginal legends. She wrote about them, and she lived with them sharing their customs, ceremonies, lifestyle and food and caring for the young and old, nursing the sick. No matter whether she was in the outback or in Adelaide she was always dressed immaculately and was an anachronistic figure in a Victorian type costume of wide starched white collar, blouse, voluminous ankle length long skirt, button-up boots, white gloves, hat and voluminous fly-veil. We often lunched together at the Grosvenor Hotel in North Terrace. She was an Irish woman of high breeding yet she had ridden camels hundreds of miles droving stock, side-saddle, of course, as that was the lady-like thing to do.



Daisy Bates, C.B.E.

It was summertime and I was chasing the heat but on this occasion it was not the heat that was nearly my demise.

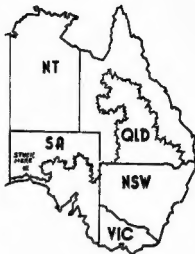
The journey from Melbourne and halfway across the Continent had gone well and the old campervan now had 167,000 kilometres on the clock, mostly made up from many previous successful expeditions. The Eyre Highway was enchanting me once again. Although the traffic these days is increasing at a great rate, every driver still acknowledges the other driver by raising one finger. Last time I did the Eyre Highway each driver raised the whole hand in the fashion of the Queen so it is an interesting observation of our changing times as soon drivers will no longer observe this ritual on one of the world's longest highways.

A radio amateur passed and flagged me down. It was Geoff VK3NZV/VK3YNX headed for Port Hedland. We had never met before but we compared notes and arranged nightly skeds (but if he gets to read this he will understand why I failed to keep them). I was to have skeds with Len VK3VLA too, but these also had to go by the board.

Earlier, I called into the Travellers rest but as net control, Art VK6ART had a little difficulty in copying me Pam VK6WP/MM on the yacht "Serendipity II" bound for New Zealand, relayed my QTC from out in the Bight. What a great organisation this net is.



Leaving Ceduna for the Nullarbor Plain.



Now I was about to leave the bitumen at Yalata, a little place near the West Australian border, and then I was headed north into the Nullarbor Plain. The track wended its way through the Aborigines Mission Community to link Ceduna on the Trans-Continental. Ceduna was my objective.

As the desert light of day gave way to the fantastic purple light of evening I seemed to be making good progress, looking left and right for some suitable growth, high enough to hang my sixty-six foot of "wet string". This is a simple portable antenna which never lets me down.

Verticals don't work too well planted in the sands of the outback, and just you try radials and counterpoises when you're tired, hungry and clean out of daylight. Getting up that "wet string" is a big enough hassle although I do have it down to a fine art these days. A fishing rod handle with a large casting reel loaded with heavy nylon line and a heavy spherical sinker heaved us as high as possible. You then tie the antenna wire onto the line and haul it up. If you miss your throw don't attempt to pull it back but instead let the line down again, cut the sinker free, retrieve the line and start again. There are many sinkers, spinners and rocks in trees all over Australia waving in the breeze above many an unsuspecting head innocently working on his barbecue.

If this is not your style then use a temperamental whip, which is invaluable when there are neither trees nor good ground. Arthur VK3AM made me a close-wound forty metre helical whip which is virtually a coil about 18 inches long, which always works well but it does display more fade than the "wet string". A whip is best fitted with a spring-loaded base for easy plugging into its socket and saves the slow frustration of unscrewing it each time for tuning, especially when it is mounted on top of the van.

On past trips into the "mulga" where there have been no trees I have used an extended vertical for the sole purpose of

hoisting sixty-six feet of light bell wire up in the air. The vertical mast extends to thirty feet and at times I have had to guy it against the winds. There were no high trees here so I made do with my "wet string" very low down which worked well. Unlike the vertical, you don't have to water it to make a better earth Army fashion.

My location was now a few kilometres south of the Dog Fence, but more about that later.

It was a beautiful night as most nights are in this gorgeously arid territory. The stars do not twinkle any more and the days are brutally hot and devastating. The heat takes away your appetite and reminds you how much you rely on litres and litres of water. My once ample ice supply was dwindling but at the same time was providing me with water which I was loathe to throw away.

A "pig-skin" type water bottle is a must. My daughter, Anita, made the excellent choice for a Christmas present some time ago and it has proved more than its worth in the opal fields of Yowah and Lightning Ridges.

I had pulled off the track for the night. The track was rough, stony and at times heavily corrugated but off the track on either side the terrain was sand, but after testing its firmness I considered it okay to put the vehicle into the spinifex as I considered it unwise to block the narrow track in case another vehicle came by. (None did and I doubt if they ever would.)



Nullarbor Camp, north of Yalata, south of the Dog Fence.

I rolled over in my bunk and saw that it was again daylight. The morning was as beautiful as the final hour of twilight. Stark, eerie, silent.

I got up before the searing heat of the plain set in. I mind the remarks of Ted VK5AI mentioning on one of the radio contacts something about "mad dogs and Englishmen go out in the midday sun." So what else is new? When you are out here you can't hide from it.

Ted did try to discourage this trip on the grounds of the risks involved, reasons I could not see at the time. However, he was going to be the first to come to my assistance a little later on.

I had had some difficulty getting off the track at night and next morning I was faced with the same difficulty to get back onto it. But perseverance won through and I was under way again heading north. The only landmarks to be seen are more place names like Monburo Tank, Broom Tank, Moondrah Tank, Padina Tank, Rockhole and Lake I found, which is a salt pan. These tanks and rockholes would seem to suggest water to the thirsty traveller in these parts but one must not be fooled by them. They are relics of days gone by. They have fallen apart and the only ill-khlood of water could be in the rockholes, but I found none.

Pushing onward, kilometre upon kilometre was rewarding enough in a landscape that knows no change except for the colour variation due to the time of day. The outback plains country—a continuous landscape that you can see at once in all directions, 360 degrees of uninterrupted horizon.

Being out here alone there is a certain feeling of reassurance having radio on board. I have only to switch on the vehicle's main transmitter and I am in touch with the world.

On previous east-west and north-south excursions I have never had to transmit an SOS.

Now and then the vehicle hit some light sandy patches across the track but I was not unduly worried. It would veer slightly but nothing like up at Cameron's Corner, where I near to went through the dog fence roadside.

This mighty fence runs for thousands of kilometres from Eucla in Western Australia up through South Australia, then into Northern Queensland and then snakes its way down to the border of New South Wales. It could almost be likened to the Great Wall of China. In Queensland alone there are 5800 km of it.

We, my vehicle and I, had passed through two fences back in the Aboriginal Community Reserve but now we come to one with a gate in it. This is the Dog Fence.

I did consider hooking up the radio transmitter to it and putting out a CQ DX call, after all it is insulated from the ground mostly by sand. If you could tune it, you would have an antenna nearly the size of Australia, itself.



The gate in the Dog Fence between Yalata and Oodles. Tracks parallel with the fence used to be camel tracks.

I was now in the area where the late Daisy Bates worked amongst her beloved natives. I had the good fortune to know her back in the days of 1939 when she made a visit to Adelaide.

It was mainly due to my high regard for her that prompted this expedition to Oodles, a tiny railway siding where she made her headquarters for sixteen years. Maybe some of the natives I met may have been the descendants of some she cared for. Indeed, I photographed one chap by invitation and then he charged me a "dollar" for the privilege and he said if I hadn't been a friend of Daisy Bates it would have cost me two "dollars". I have my doubts if he had ever heard of her and I don't think he knew too much about the "Dream-time" either. His face changed dramatically when I could not provide him with an instant Polaroid picture.



Charlie's picture cost me a dollar and my expression changed but his expression changed when I could not produce the instant photo he demanded.

The northbound track appeared okay but the vehicle still veered somewhat at 80 km/h due to the patches of sand. My reckoning put me more than half way between Yalata and Oodles bordering on the Great Victorian Desert and the edge of the Nullarbor Plain. The van radio equipment, which had done nearly as many miles as the van in the hot country, was a Kenwood TS520s backed up by my old faithful emergency rig, the tiny Marconi Type A which I used to make my first amateur contact from Heard Island in 1947. I was using the call-sign VK3ACD with four watts across 3500 miles of ocean then.

Before leaving Melbourne I had added "Nulon" to the engine oil as I was assured that if I ran out of oil this teflon additive would get me by with no oil in the engine as it coats the frictional parts. At the rate I was losing oil due to an ill-fitting rocker-oven gasket I took some comfort in this knowledge.

The further I journeyed up the track the greater the feeling of being alone. One can think . . . I did . . . What would I do if any system failed. Then I reassured myself with the thought that there was nothing

that could go wrong that I couldn't cope with. After all, I was carrying adequate (???) emergency equipment. And then there is the radio, but who would come all these hundreds of kilometres to get me?

I was still doing a steady eighty km/h along this sun-drenched track which was, like my mouth, dry and dusty. One cannot imagine that it ever rains, although at times you would think there is rain approaching in the early part of the day, then the sky clears and the searing desert sun beams down again.

Sand, salt-bush, spinifex and mulga are whizzing by when WHAM!!!! It happened about 10.00 a.m. and somehow I could tell it was going to be permanent. The terrain in front of the vehicle didn't seem to change, maybe I was dazzled by the glare, but suddenly the van plunged headlong into a metre of fine sand. When this happens the brakes are not necessary any more. I was about to learn that all the emergency equipment I carried was not going to get me out of here and I would fast realise how big this Big Country really is.



The van jacked up for a final attempt to winch it out.

I had had a radio sked with VK5AI (Port Willunga) earlier in the morning and I sensed he thought something was going wrong as he requested another sked for midday which was something we had never done previously, as I am usually well on my way by then and do not believe in "gobbling the mike" whilst driving. This time I would stop though because I did not know what I was heading into. It was on this midday sked that I notified Ted that I was stuck in sand and I was trying to dig it out. It was at this point that Ted seemed concerned and asked for hourly skeds and set about putting the Emergency Net into operation. I really welcomed these suggestions as it simply meant I was not out here alone.

I had a small shovel suitable for digging bog holes, my towing gear was adequate though lacking in length. Ted VK5AI suggested I make a "deadman" out of one or two of my spare wheels. This was good

thinking but out here things are a little different. There was hard ground 10 metres astern but no shovel would ever make an impression on it. So why didn't I carry a crowbar or a pinch bar???

Sweat was pouring off me in the 46C heat of the Nullarbor and the radio boys were trying to keep my pecker up. It was good as I was in a situation that I could not handle. I was not too concerned at the present moment but I was not to know how long I might be stuck out here in this beautiful country that was good for nothing except to look at.

The boys kept enquiring about my water supply. I had adequate water, although food was somewhat limited, but it was too hot to bother with eating anyhow.

All day I dug and dug but it is not easy with such a small shovel, which was normally used for walks when nature called. I was rapidly making no progress. What a fool I was to have not brought a long handled shovel along.

The Nullarbor is hot yet it is fabulous as in the notes of Daisy Bates, 1913, she says:

"Here there is nothing young that is not long since old. Here there is no germinal potency of nature. The mystery, beauty and freedom of these boundless plains will repel one whose artistic sense demands a more genial scene for its gratification.

"There is solemnity for some, a wierdness for others in this hushed immensity. There is little travel along these desolate tracks. . . ."

Yet with it all and during a time of stress out here, my artistic senses were aroused more than ever before, even more than in the wastes of Antarctica.

Ted VK5AI directed that there should always be at least two stations on the emergency net in case of signal shut-down which was good thinking because out here in this predicament, you cannot afford to lose radio contact.

The net stations asked again if I had sufficient water, which I did and also if I required assistance, but I declined. The wheels were not that far down that I couldn't get something under them. I just couldn't believe that I could not extricate the vehicle by myself. I had the feeling VK5AI did not share my beliefs and seemed most concerned as did Doug VK5DW.

Everything I put under the wheels disappeared out of sight into the powdery sand each time I applied a little reverse power. I dug and dug, but to no avail with the temperature around 46C in the meagre shade that I could create. After a short rest I commenced making up an extremely long towline of about twenty metres which would reach the only tree stump located behind me. It must have been the original "black stump" but it's not there any more, because I winched it out whilst the van stayed put.

Next I set about jacking up all the wheels in turn and placing salt-bush, deadwood and chains beneath them, but al-

ways to no avail. All day I persevered but the chains buried themselves half a metre down in the sand.

I must have drank litres of water during these activities. Maybe I'd quit now and attack the situation again after sundown and see what great joy there may be for me then.

I was becoming water conscious and did not let the water in the wash basin go after washing hands as I may need it to drink, although my water supply could last a week if necessary, perhaps longer. My most valuable commodity now, apart from the radio, was my pig-skin water bag. Although the bag is soaked in warm water outside the evaporation process is such that it ensures cool drinking water inside.

One must use as little water as possible in a land where there is none. Epsom Salts or alum are useful for clearing dirty water to be used for purposes other than drinking, although you could even drink it if necessary. A little of either causes all substances in suspension to flocculate to the bottom.

The van had moved sideways against the metre high embankment of encrusted loose sand as a result of my endeavours to move it. Each time I edged around the van to adjust the aerial an avalanche of powdery sand filled my boots. I was covered from head to foot in this wretched fine chalk-like sand, and I could no longer get at the wheels on the starboard side.

Realising the hopelessness of the situation, I requested assistance in my next radio contact with VK5AI and VK5DW. THIS WAS A "MAYDAY!!!!"

I outlined to VK5DW and VK5AI my type of vehicle, registration number, colour and my driver's licence number for authenticity. I am down in sand on Yalata/Goolde track about three kilometres north of dog fence. No immediate urgency but assistance requested. Suggest four-wheel drive vehicle.

"We've got to get him out of there." This is what I heard VK5AI say to VK5DW. There was a positive ring to it and a certain finality which sounded reassuring. There was little more I could do from this end now.

VK5AI was located at Port Willunga, some 90 km from Adelaide and was without a "landline" so it was suggested that VK5DW, in Adelaide, take over and notify the Adelaide police immediately. VK5DW phoned the Police Communication Centre and spoke to Sergeant Jim White, who set the ball rolling.

On the next hourly sked, VK5DW reported to me that Adelaide Police were taking immediate action. They also wanted to know if I had adequate water—the same old question. I imagine that if I had not they would have immediately despatched an aircraft. Such was the efficiency of this Department. The news that they were on their way was gratifying but they could still have trouble locating me. Then I thought of what VK5DW and VK5AI were doing and I realised I was completely in their hands through the medium of the Amateur Radio Service.

On the next sked I asked VK5AI to assume control as he was the strongest signal into the Nullarbor. Normally the expedition vehicle controls the net but for obvious reasons now I had other things to do. Ted accepted control and on several occasions asked other stations using 7.060 MHz to clear the frequency for an emergency, whilst Bill VK2BC, in Sydney, was doing the same thing, although his signal was very weak with me.

Ted and Bill appreciated the co-operation of the stations that QSYed on all occasions but Ted later commented that none of these stations asked if they could stand by to assist if necessary. They probably were, anyway, but shortly afterwards, when my signal went down Ted could have used their help. Perhaps a "Mayday" is a little unusual on amateur radio.

My new battery was holding up well and I had no worries about the solid 104 Ampere-Hour unit especially made for me back in Melbourne.

Between radio skeds and under the hot Nullarbor sun, I persevered with digging and jacking, but it was all so hopeless. I thought about a trolley jack but realised I would never get it under the differential as the stem of the van was now sitting flat on its underneath spare wheel.

My plastic bread-board made an excellent base on which to place the mechanical jack but it distorted at an amazing rate under pressure, however it later returned to its natural flatness to such a degree that it could be used again for a bread-board, that is if ever I feel like eating again.

I consumed another litre of cool water and decided to lay down for another rest in the hot vehicle where the temperature was 52C. I had the fan going full blast and all doors and windows open, but there was nowhere else that I could hide from the heat of the desert. My daughter, Jill, gave me the fan for the vehicle and she will never know how vital it has been.

Next day, VK5DW announced that the Police needed more information. They kept asking for more and more information. I felt I was now scratching the bottom of the barrel. I informed the emergency net that I would make further calculations by compass and transmit another fix on the next sked.

I did my calculations and was now quite confident of my exact position according to all navigational aids I had on board. My main compass had gone berserk so I was using two hand compasses which were extremely accurate. My distance measuring device (K/m) on the vehicle showed a calculatable error due to a change of tyre diameter.

My radio call of VK3CD/Non Portable became the joke of the day as Non-Mobile have been more appropriate. VK5DW laid first claim to my rig and VK5AI to the van in case I didn't make it out Vultures.

Next transmission VK5DW came up with a QTC which read: "CEDUNA POLICE

WILL HANDLE SITUATION FROM NOW ON." It was short and sweet but it said a lot. At least I could sleep on it tonight.

Next morning came the message: "ADELAIDE POLICE REQUIRE MORE DETAILS ON MY POSITION FOR TRANSMISSION TO CEDUNA."



Making further calculations to transmit to VK5DW.

Very depressing, what further information can I give I suppose I was getting myself knotted up as I told myself a lot of money could be at stake in getting me out of this mess, so I again set about studying the charts and trying to remember any landmark that could be useful. I now observed I was 11 km north of the Dog Fence and not 3 km as I had earlier reported.

Radio communication was keeping up well and VK5AI and VK5DW were doing an amazing job which no-one could appreciate more than I.

VK5WK Nobby was asked to assist when VK5AI had to vacate the frequency during the afternoon. Nobby was coming in to me loud and clear at a time when Doug was having trouble hearing me.

It was so hot that after that sked I dozed off for an hour or so as I was so tired I could have slept for a week with no interruptions, including the radio.

I must only have been asleep for a couple of hours when suddenly a voice at the open back door said, "Hello there." I awoke with a start to look around and it seemed the entire Nullarbor was alive with policemen, two very large four-wheel drive vehicles and another belonging to a geophysicist, Ross, who was headed for Watson, up the track. These vehicles all had large diameter wheels and Ross went through the sand that had bogged me down with no trouble and he was in an automatic two-wheel drive.

The Ceduna police, Brad and Darryl, were on their way back from Eucla, WA, when they met up with Lloyd and another policeman from Penong at Yalata and then continued quite a distance together to get me.

Lloyd put a healthy looking cable onto my van and towed me through the sand some 300 metres. How good it is to have

firm earth under my wheels again. These guys were not going to waste time. Somehow they looked at odds with this parched environment as they and their vehicles were so immaculate but I soon realised there was never a doubt that they would accomplish what they had come for.

I ruefully confessed to Lloyd that I had left a fuel pump back where I had gone aground so with no trouble he drove me back to retrieve it. I took this opportunity to broach the subject of reimbursement, but was brushed aside with the comment, "No way. If you can't ask us for help, then who can you ask?" I liked what I heard and that is why I had to write this story



Help arrives.

Lloyd enquired which direction I was now going to take and I told him I would return to Nundroo on the Eyre Highway.

"Right," the boys said, "you go ahead so you don't get our dust and we'll meet you in Nundroo."

I detected a certain overtone in this remark. More likely they wanted to make sure I didn't attempt to take off northward again. I don't think the dust had anything to do with it. But I needed little urging now that I had firm ground under me again and I set out for Nundroo. I made it back to the Dog Fence taking care to close the gate after me, because I knew the law was following. (I would have done so, anyway.)

I met up with my rescuers at Nundroo and THEY bought me my evening meal there. We had a good discussion and agreed the expedition had turned out to be one of misadventure.

Adelaide Police Communications Centre told Doug VK5DW that they were impressed with the way the Amateur Radio Service had handled emergency traffic as Doug had notified them immediately I had become mobile again and this happened before the news reached them by official channels. The police told Doug that it was surprising how few people had the common courtesy to say "thank-you" when an emergency had passed.

From my end it was pretty impressive how the police came to my assistance in this remote outback region.

L to R: Doug VK5DW, Alan VK3CD/MS,
Ted VK5AI and Dave VK5DS.

The expedition failed just short of 50 km to reach its goal, Ooldea. Ironically, back at the turn of the century, Daisy Bates would never have had this problem with her camels.

My special thanks to.

South Australian Police Communications Centre, Adelaide (Especially Sgt. Jim White.)

The Penong Police, S.A.

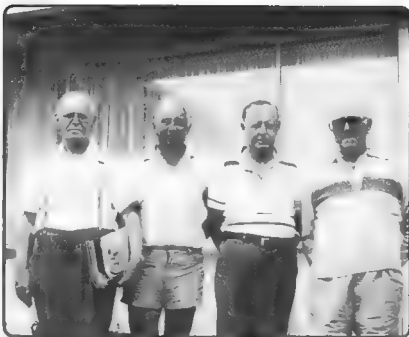
The Ceduna Police, S.A.

The Amateur Radio Service Emergency Net on 7.060 MHz with VK5AI, VK5DW, VK5WK

The VK5 Travellers Net on 14.106 MHz which is always there with Keith VK6KC, Art VK6ART, Tom VK6TB, Ken VK3PN, Doug VK3YK.

The Royal Flying Doctor Service. (in case I needed them)

Acknowledgements: Photo of Daisy Bates, CBE, courtesy Douglas Glass, Adelaide.



New Amps from Old Batteries



Dick Goelin VK3SV
48 Hardwicke St., Bathurst 3103

Why trade in your worn-out (?) car battery for a couple of dollars when with a little effort and the availability of a charger it can provide a useful DC power supply in the shack for several more years.

Before attempting this procedure, adequate protective clothing, safety goggles or face shield and rubber gloves should be worn and all work should be carried out in the open air — with a bucket of water in close proximity in case of accidents.

The method described below kept many private cars on the road when replacement batteries were unobtainable during World War II. Providing the car was started with the crank-handle (no toolkit complete without one!), the "rejuvenated" battery would supply sufficient current for ignition, lights horn, etc.

The main cause of deterioration and eventual failure of a lead-acid battery is vibration, which results in some of the lead oxide paste being dislodged from the plates and settling on the bottom of the case. The battery's amp-hour capacity gradually diminishes until it can no longer supply the high current required by a starter motor. If sufficient paste is dislodged to reach the bottom of the plates, then a cell (or cells) will be internally short-circuited. Either of these conditions will make the battery useless for car starting.

But if the short-circuit or dead paste is removed, the battery can still provide adequate current for radio and other needs, especially in a situation where there is no vibration to dislodge further amounts of paste. Most batteries are in fact traded before reaching the short-circuit stage, and it is therefore recommended that the entire battery be "given the treatment" rather than deal with only a particular cell which may be suspect.

If possible, obtain some battery acid of 1,290-1,300 specific gravity from a sulphuric acid manufacturer or their agents as the job will be more satisfactory if fresh electrolyte is used (about 2.0-2.5 litres for a 12V 9 plate battery). This slightly higher-than-normal SG will also compensate for the dilution caused by retention of water during the washing-out process. Also obtain some distilled water from the same source. The old electrolyte may be re-used (see later), and tap water used for washing out the cells but these may introduce suspended and dissolved contaminants which the recommended method will avoid.

Now to the job itself! —

(1) With cell plugs removed and electrolyte at the correct level, charge the battery fully which will minimise any further fall-out of paste during the wash-out. Continue charging for 1½-2 hours, rocking the bat-

tery from end to end at intervals so that the paste previously shed will be dispersed through the electrolyte by the combined action of "gassing" and rocking.

(2) After removing charger leads, pour the electrolyte into a plastic bucket or large glass jar. The latter is preferable if the electrolyte is to be used again as it enables the settling of solid matter to be easily seen.

(3) Partially fill the battery with distilled water (or tap water), shake, and pour into a second bucket. Repeat once or twice when the amount of suspended matter coming away with the water should be RELATIVELY small. Do not try to get out the "last little bit" as excessive washing may result in low specific gravity when the battery is recharged.

(4) Fill the battery to the correct level with fresh acid and charge to the gassing stage. If the old electrolyte has to be used first decant the clear liquid into a second glass jar so that as little as possible of the solid matter is re-introduced into the battery.

Carry out the work in the open air and protect the eyes with safety goggles or a face shield. A bucket of water should be kept handy so that any splashes onto skin or clothing may be quickly washed off.

Waste material from the battery should be thoroughly neutralised with a mild alkali such as baking soda or Limil, then poured into a hole in the garden and covered with soil.

The writer has for several years used a "rejuvenated" battery to supply up to 10 amps to an old carphone, plus other 12V DC requirements. Battery and charger are side by side on a layer of bricks outside the shack with a timber canopy for weather protection. Old welding leads brought through the wall are terminated at a polarity socket with a voltmeter across it. 240V AC to the charger goes via a switch and neon indicator above the bench.

FOOTNOTE: The trade-in offered for battery replacement is actually the "scrap" value of the lead plates for melting down. A battery from which the last amp. has been extracted will have the same value as when it became unsuitable for car use.

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The VK3ABP Two Metre Converter (1982 Model)

W. M. Rice VK3ABP

54 Malden Street, Altona 3210

In November 1962 an article was published in AR describing a simple 2-metre converter using three valves. It became the best-known device of its kind in Australia, and enabled many enthusiasts to hear for the first time the activity on 2, mostly then AM phone.

Although hundreds of these converters were built time has passed and times have changed. Electron tube technology has been largely superseded. To the present generation of amateurs valves are akin to the swords of the Crusaders, and only slightly more recent. But there is still activity on 2. These days it's FM repeaters, FM simplex, AFK RTTY, SSB, CW, DX, SSTV, satellite nets, NBVM, moonbounce, you name it! And you can all receive all this (perhaps excepting moonbounce) on a simple converter into the appropriate receiver.

The time has come for a new 3ABP 2-metre converter. As simple (or simpler) to build but taking advantage of newer techniques. Not really state-of-the-art; that would imply all on one chip too small to see but smaller, much more economical of power, and of better performance than its 20 year old ancestor.

STUDY WITH US

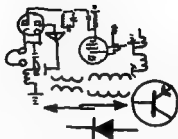
The old converter was on a chassis about 115 mm x 75; the new is on a single-sided circuit board 71 mm x 41, for which the full-size artwork is reproduced in Fig. 1. Component placement is given in Fig. 2, and the circuit in Fig. 3. One of the design considerations was that there should be no unusual components. With this in mind the board was laid out to

accommodate 1/2-watt resistors, the common 1/2-inch square Neosid coil cans (21 used), and a style-D (HC-6/U) crystal. If special miniature components were used the size could be reduced to about that of a matchbox; but must a converter barely be larger than its antenna connector?

Electronics, the circuit bears some resemblance to its parent. It still uses the arrangement of 3 coils in line, with mixer input sandwiched between RF and oscillator output, signal and oscillator both thereby being inductively coupled to the mixer. But the RF stage is now a dual-gate FET, mixer is a junction FET, and oscillator output at 120 or 130 MHz is derived from a 40,000 or 43,333 MHz 3rd-overtone crystal-oscillator/triplex in one bipolar transistor. Total power consumption is about 10 mA at 12V, i.e. 120 mW. The hungry old valves needed 8 watts just to light their heaters, and then about 6 watts of plate supply. Did someone mention dinosaurs or dodos?

ETCHING THE BOARD

Those who are fortunate enough to have access to the requisite photographic equipment will photograph Fig. 1 full-size, produce a negative (i.e. tracks clear), and use it to expose a board coated with photo-resist, which can then be etched to remove the unexposed copper. But, particularly for a one-off job, there is another way. Photocopy the artwork and stick the copy to the surface of a piece of single-sided copper-coated laminate. Use the copy as a template to drill all the holes. Remove the template, clean the copper with steel wool, and use the holes as a guide to draw the resist pattern on to the copper with a fine felt-tip pen. Pens which



use an aceto-based ink are preferable. If in doubt, try the pen on a test piece to see if it resists the etchant. The inked board will not be as pretty as a photographic job, edges may be a little furry or shaky and track widths less uniform, but what matter? Trim them if necessary with a sharp blade, scraping away surplus ink when fully dry. The board may now be etched in the usual ferric chloride solution, agitating it gently as the copper dissolves. Stop as soon as all unwanted copper has disappeared, wash and dry. The board shown in the photograph was made this way.

ESTHER L. HANAUER

Apart from the holes for component pig-tails (No. 65, 0.8 mm, 0.035 in.) there are three larger holes in the board which may be recognised by the two keyways in their circumference. These are drilled to slightly less than the minimum base diameter of a Neosid former, then carefully open out with a round file (and a rat-tail or Abraflex for the keyways) until the Neosid formers are a snug fit. The three formers may now be glued in place, on the non-copper side of the board, using epoxy cement. Check before the glue sets that the slugs are aligned with the holes in the can tops (except oscillator L5, no can) by fitting the cans temporarily. The slugs must be able to turn freely through the holes in the cans.

The components may now be mounted and soldered in. One resistor (the 1500 ohm in the mixer source) is mounted vertically, with its top pigtail bent through 180 degrees and passed through the appropriate hole to the ground plane. All other resistors are mounted parallel to the

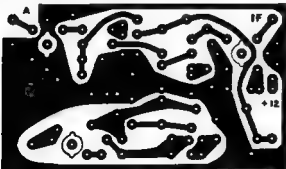


FIG. 1: PCB Artwork

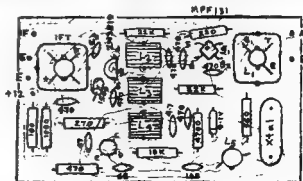


FIG. 2: Component Placement

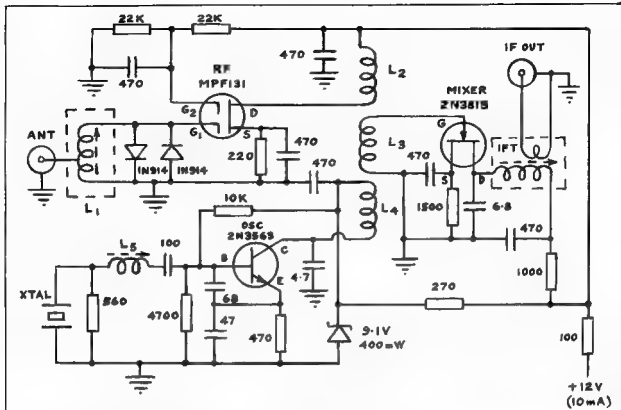


FIG. 3: Converter Circuit

board, their pigtails being bent neatly at right angles close to the ends so that they are spaced by 1/2 inch (12.7 mm).

The holes for the crystal pins are drilled to clear (No. 60, 1 mm, 0.040 in. minimum) and the pins may either be soldered in, or small spring contacts soldered to the board to permit crystal changing if desired. Of course, a smaller solder-in type crystal may be used if available; the leads will need to be played out somewhat.

ALL ELEVEN CAPACITORS MUST BE DISC OR BEAD TYPE CERAMICS. The 6 470 pF items are the usual Hi-K bypass type, but the remaining 5 needs to be more stable. These are the 100, 68, 47 and 4.7 pF in the oscillator circuit and the 6.8 pF in the mixer drain. They should have temperature coefficients of no more than N750. N470 or N220 would be better, but since the dielectric constant (K) of ceramic mixes becomes less as their negative TC is reduced, a given capacitance needs more volume in lower TC grades. A 100 pF NPO (zero coefficient) would be impossible to fit, being about 20 mm diameter. Incidentally, the TC of Hi-K ceramics is usually more than 2000 parts per million per degree C.

There should be no problems with the remaining components, except possibly the input protection diodes. These are most simply located on the underside of the Board, although cunning constructors may

be able to fit them inside the can of L1.

COILS

Winding data for the five coils and the IF transformer is shown in the table. All coils are close-wound. It is recommended that L1 and L5 be pre-wound on a suitable diameter drill or other mandrel so that when they uncoil slightly after winding they will be a snug fit on the Neosid formers. A No. 14 drill (0.182 in., 4.6 mm) is best. The coil may need to be sprung open a little further to slide over the former and when released will lock in place. Leads can be bent and tinned so as to drop into the appropriate holes in the board. The tap on L1 is made before winding, by twisting a small one-turn loop in the wire and tinning it. After the two end connections are soldered in the tap is connected to the board with a piece of scrap resistor pigtail.

This pre-winding technique is not appropriate for the IF transformer because the wire is too fine, but winding direct on to the mounted former is quite simple. Use a dab of quick-setting glue or a little melted beeswax to hold the winding in place. The 3-turn secondary is wound over the "earthy" end of the primary in the same way, perhaps with a layer of cellulose tape between the windings, although this is unnecessary with tough enamel wire. (All windings must, of course, use enamelled wire.)

The remaining 3 coils are simply pre-wound on appropriate mandrels, eg drills of 5/16 inch for 8 mm and 1/4 inch for 7 mm. Their end leads are bent out radially and tinned so that the three coils will line-up on the board on a common axis parallel to the surface.

TRANSISTORS

Many alternative devices may be used in lieu of those specified. The RF stage could be a 3N210, or the wire-lead 40673. Some of the Japanese 2SK types will also suit. Leads on the MPF131 and 3N210, which resemble four-legged spiders, need to be bent at right angles to enter the holes in the board. The top surface of these devices has a small indentation to identify the source connection.

Unfortunately there is a wide variety of pin layouts among the junction FETs which may serve as a mixer. The TIS58, TIS59, TIS68 and 2N5248 have the same connections as the 2N3819, but the MPF102 which also works well has the drain at the opposite end and source rather than gate in the centre. It can be used by rotating through 180 degrees, ie flat side towards IF can, and then crossing over the two leads nearer the centre of the board (source and gate), ensuring by careful bending that they do not touch each other. The same remarks apply to the 2N5245.

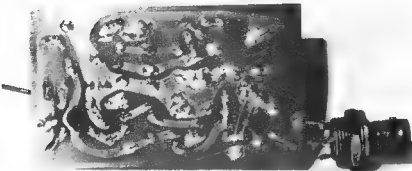


PHOTO 1. Showing Underside



PHOTO 2: Top View

COIL TABLE

L1	6½ turns on 5 mm Neosid, tapped at 1¾ turns	} In-line, spaced approx. 1 mm
L2	6 " " 8 mm ID, self-supporting	
L3	6 " " " " " "	
L4	5 " " 7 mm ID, " "	
L5	9½ " " 5 mm Neosid	
IFT	43 " " " 3 turn secondary	
Wire, enamelled copper, gauges as follows:		
L1 to L4	22 SWG, 20 B&S, 0.028 inch, 0.7 mm	
L5	26 SWG, 26 B&S, 0.015 inch, 0.38 mm	
IFT	39 SWG, 36 B&S, 0.005 inch, 0.13 mm	
All windings are close-wound.		

ALIGNMENT

Several people have already constructed these converters, and found that 2-metre signals have been tunable as soon as power was applied. It may be found that the slug in L5 needs adjustment to ensure reliable oscillator starting. It also has a slight effect (only a few kHz) on the frequency. Having found the local beacon or repeater, the antenna coil L1 and the IF transformer may also be adjusted. Neither tunes sharply, but a peak should be detectable.

The three air-cored coils L2, L3 and L4 will probably be found to need slight reduction of their inductances. This is achieved by "knifing" the coil into two parts which are spread apart slowly with a non-metallic blade while watching for a peak in the received signal. The adjustment of L4 (multiplier output) should hold good for all signal frequencies, but L2 and L3 should ideally behave as an overcoupled bandpass pair. Only the purists will insist on a symmetrical double-humped response with peaks at about 145 and 147. The average user will be content with something approaching a peak around his main frequency of interest.

If sweep and/or signal generators of adequate quality are available, a little time spent in careful alignment could be rewarding, but it is by no means essential. Even the author has not investigated the performance this deeply (yet!). There should be few complaints about sensitivity. Such measurements as have been done suggest that in conjunction with a reasonably good HF receiver having an FM detector, a converter input of 0.1 microvolt should produce substantial quieting. It seems probable that the noise figure should be better than about 3 dB. In other words, for an outlay of about \$20 and a few hours' work you should have no trouble in hearing what's doing on Two! ■

CALL SIGNS

Attention of members is again drawn to the habit of omitting the prefix "VK" when announcing call signs. This is particularly noticeable in the case of phone operation.

Such practice is not in accordance with International requirements and contravenes the Wireless Telegraphy Act. Operators should be careful that they use the full call sign allotted to the station concerned.

- This appeared in AR August 1955 and is again necessary as a reminder.
- Remember that during a "session" of short to and fro transmissions it is only necessary to announce call signs at the beginning of the "session" and not less than every 10 minutes thereafter.
- — and this applies equally to contacts through the repeater.
- Separate concessions apply only in respect of WICEN communications.

The bipolar transistor which functions as oscillator/tripier may be chosen from many possible types besides the 2N3563 or PN3563. Most small NPN types with f_T greater than about 400 MHz will work, for example 2N706, 2N2369, 2SC763, 2SC1687, BF180, BFX89 and BFY90. But beware—not all the devices listed have the same base connections, so check carefully with the appropriate data book.

CRYSTAL AND INTERMEDIATE FREQUENCIES

Mention was made earlier of oscillator frequencies of 120 or 130 MHz, derived from crystals of 40 000 or 43 333 MHz. These are preferred since the IF for 144-148 MHz then becomes 24-28 or 14-18 MHz respectively, so that the integral megahertz (4, 5, 6 or 7) and decimal thereof may be read directly from the receiver calibration

If desired, the oscillator could be on 140 MHz to give an IF of 4-8 MHz, the crystal frequency then being 46.667 MHz. Such a low IF does, however, introduce image response problems from signals between 132 and 136 MHz (in the aeronautical band), and also the specified IF transformer will not tune low enough. It could be shunted with additional capacitance (about 150 pF) but would then need to be retuned from one part of the band to another. The transformer as described tunes from about 16 to 24 MHz by adjustment of its slug, and is reasonably broad in its response. However, if optimum performance is needed at 144 MHz with a 14-18 MHz IF the 6.8 pF capacitor may be changed to 10 pF. Conversely, if the IF is 24-28 MHz and the high end is where interest mainly lies the capacitor may be reduced to 3.9 pF.



VK4 Old-Timers Get-Together

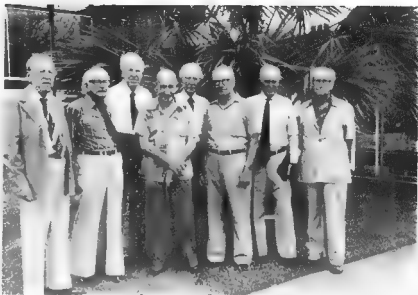
On 24th February, 1982, at Southport RSL Club, there was a "get-together" of OLD-TIMERS whose aggregate ages would exceed 600 years. All were licensed before 1930 (with the exception of VK4FE).

Those in attendance were Perc Wood, ex-4RO from Ipswich in 1930; Fred Matthews, OBE, ex-4FK, Brisbane, 1924; Col Grant, ex-4JG, Brisbane, 1930; Arthur Burton, VK4FE, licensed in 1937; Leo Feenaghty, ex-4LJ, Brisbane, in 1930; Arthur Watz, VK4AW, ex-4AW, Brisbane, 1926; Vern Kenna VK2JR, ex-4FK, Brisbane, 1930; and Cliff Gold VK4CG, ex-4CG, Brisbane, 1926.

All had a marvellous time and for those that were unable to attend there will be another opportunity in May.

PHOTO (l. to r.). Perc Wood, Fred Matthews, Col Grant, Arthur Burton, Leo Feenaghty, Arthur Watz, Vern Kenna and Cliff Gold.

Photograph, notes and meeting arranged by Peter VK4PJ.



Left to right: Perc Wood, Fred Matthews, Col Grant, Arthur Burton, Leo Feenaghty, Arthur Watz, Vern Kenna and Cliff Gold.

THE NATIONAL EMC ADVISORY SERVICE

Would like to remind all Amateurs of the importance of keeping a very accurate and very detailed record of all occurrences, no matter how small, in any cases of interference in which they are involved. The importance is emphasised if there are difficult third parties or legal involvement.

Well... I Can Dream, Can't I?

by Bando Linn K4PP



"We've discovered a new high-speed way to learn the code! This shot will make you a 25-word-per-minute man immediately!"

CHIRNSIDE ANTENNAS

Why not step up to a high performance
Duo-band Yagi, the CE-42, 10-15M.

Solid construction. 8.5 DB gain, 25 DB F/B ratio. Electric band switching means only 1 run of coax is required! This alone could save you up to \$50 (not to mention the cost of an additional coax switch)... The use of traps combined with independent reflectors provide top DX performance for the DX enthusiast... Excellent value for only \$149.

Only one feedline required.

Still only \$149

The CE-52 is also available, which is the same as the CE-42 but on a longer boom and an extra director on 10-15M. Gain 9.5 DB... Very good value at only \$195.

Electrical Specifications	
Gain.....	8.5DB
Power handling... 2KW PEP	F/B ratio..... 25DB
Element Configuration.	Impedance 50 ohm (all resonances)
3 elements on 15M.	Longest element..... 7.4M
3 elements on 10M.	Boom length..... 4M
	Wind survival..... 150K.M.H

Chirnside Antennas are available from various interstate dealers

Chirnside Electronics Pty Ltd.

26 Edwards Road, Chirnside Park, Lilydale 3116 Phone (03) 726 735J



NOVICE NOTES

Edited by Ron Cook VK3AFW
7 Dallas Ave., Oxleigh 3160

The Dip Meter

After the multimeter the most useful test instrument for the amateur is, arguably, the dip meter or dip oscillator. Back in the days when valves were the only means of rf amplification these instruments were called grid-dip oscillators (GDOs).

A dip meter is an oscillator with a moving pointer meter to monitor the level of oscillation. It covers a wide range of frequencies, say 1.5 to 150 MHz, in one instrument and is equipped with plug-in coils. There is a tuning capacitor to vary the frequency in each of the overlapping ranges and a calibrated scale for reading the frequency. Most instruments have other features which will be discussed later. Essentially the dip meter measures resonant frequency, a most useful attribute as we shall see.

Fig 1 shows a circuit of a simple dip meter based on that described in the 1977 edition of the ARRL's "Radio Amateur's handbook". A different circuit along with full construction details is given in the RSGB's "Test Equipment for the Radio Amateur".

The circuit in Fig. 1 uses a FET transistor oscillator and measures relative oscillation level by passing part of the gate current through the meter M. The

plug-in inductors extend beyond the body of the dip oscillator and so can be inductively coupled to a tuned circuit as shown in Fig. 2a. The circuit is, of course, our old friend the Colpitts oscillator.

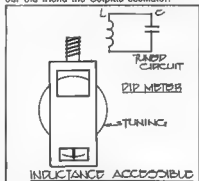


FIG. 2A: Measuring resonant frequency of tuned circuits.

To use the dip meter (DO) select a likely coil and adjust the sensitivity control to give half to three-quarter deflection of M. The DO's inductor is brought within two coil diameters of the test circuit's inductor and C1 tuned over its whole range. If no dip in the meter's deflection is seen

try other coils until the right range is found. Move the DO away from the test coil while rocking C1 back and forth across the d.p. frequency. When the dip has reduced to only a few needle thicknesses on M set C1 to the centre of the dip and read the operating frequency from the scale. This is the resonant frequency of the circuit under test.

The dip occurs because the test circuit extracts energy from the oscillator most effectively at its resonance. The depth and narrowness of the dip are a measure of the Q of the test circuit. A broad shallow dip indicates a low Q.

APPLICATIONS

1. TESTING TUNED CIRCUITS

Tuned circuits using an inductor which is accessible are tested as described above and as illustrated in Fig. 2a. Often the inductor will be screened by a metal can so mutual inductive coupling cannot be used. The small capacitor C in Fig. 1 allows a probe and ground clip connection to give loose capacitive coupling to screened coils as shown in Fig. 2b. The size of C is a compromise for the HF region but gives too much coupling at VHF, making the dip too deep and broad by pulling the oscillator frequency. Removing the earth clip sometimes helps in such cases.

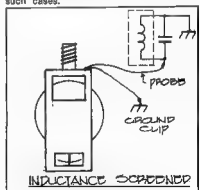


FIG. 2B: Measuring resonant frequency of tuned circuits.

Unknown IF frequencies can nearly always be established without surgery on the equipment if a DO is available. Receivers, transmitters and ATUs can be approximately aligned for first-time operation of variable tuning estimated—a considerable help to the home-brewer

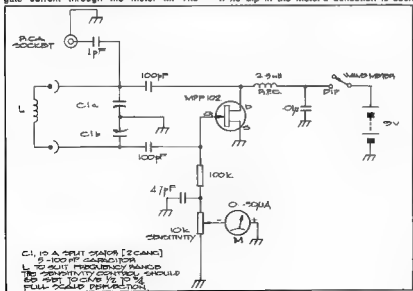


FIG. 1: Dip Meter Circuit

2. ANTENNA TESTING

The resonant frequency of an antenna can readily be established even if it is well outside the band. Also there is no necessity to run the rig into a high VSWR and risk damage to say nothing of annoying other band users. Fig 3 shows how a mobile whip installation can be tested. Dipoles, yagis, verticals and their radials can all be tested in this way. When testing a beam the elements should be tested individually as inter-element coupling may give erroneous results. Usually it is sufficient to resonate the dipole being driven and cut the reflector and directors according to directions.

3. CAPACITOR SELF-RESONANCE

The usual ceramic by-pass capacitor can cause a problem at VHF because of the series inductance of the leads. A bypass capacitor is not effective if it has appreciable series inductance, hence the obsession for short leads in VHF gear. If the lead length is adjusted to give series resonance of the capacitor and its leads then very effective bypassing is achieved

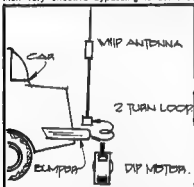


FIG. 3: Measuring resonant frequency of an antenna.

at that resonant frequency. The leads may be bent to form a closed loop or soldered to a piece of thin brass sheet or unetched pcb material to form a half loop. The resonance is found as for a tuned circuit.

The self resonance of RFC's and other inductors can be found by measuring the dip frequency when they are not connected to any other component.

4. CRYSTAL CHECKING

If a crystal is plugged into the DO instead of one of its coils then a good crystal will oscillate and give a deflection on the meter. C1 may need setting to its minimum value. The crystal will oscillate on its fundamental parallel mode frequency. Thus a 27.000 MHz crystal will oscillate around but not exactly at 9 000 MHz. Some crystals cut for low frequencies will not oscillate in the circuit used by the DO.

5. SIGNAL AND TEST OSCILLATOR

The DO may be used as a signal source with either its own plug-in coils or a crystal. Some DO's are equipped with an inbuilt tone oscillator and modulator to produce a modulated signal that is easy to identify and helpful for tuning-up AM receivers.

To tune-up a receiver the DO is set to the required frequency and a short piece of wire attached to the receiver. The DO frequency may need adjusting as the dial does not allow very accurate setting. Adjustments can be made to the cores and trimmers of the IF and RF stages for maximum signal strength. Refer to the receiver's manual for a detailed procedure.

6. ANTENNA PATTERN TESTING

If a DO is placed some distance from the antenna an estimate of the radiation pattern can be obtained by recording the "S" meter reading as the antenna is rotated. A small whip may need to be connected to C1.

7. CW PRACTICE OSCILLATOR

If the DO has a key socket it may be keyed on and off and the modulated signal monitored on an AM receiver. If you have an SSB only receiver then a crystal should be used in the DO and the modulation turned off. If a crystal is not used then keying chirp may be excessive.

8. MARKER OSCILLATOR

If you have a suitable crystal it may be used in the DO to provide marker or calibration signals say every MHz. The frequency may be accurately set against VNG or WWV by adjusting C1. Even if a crystal is not available the plug-in coils can be used to give marker frequencies but they will be inclined to drift and would need checking before each use.

9. MEASURING REACTANCE

(a) Capacitance

If you have a known inductor (a useful value is 5 uH) then a range of unknown capacitors can be measured. The capacitor is placed in parallel with the inductance and the resonant frequency of the combination measured. The unknown capacitor is calculated from the formula:

$$C = 25,330 / (f \times L)$$

where f is in MHz

L is in uH

C is in pF

(b) Inductance

A standard capacitor (100 pF is a useful value) is used in parallel with the unknown inductor. The formula to be used is:

$$L = 25,300 / (f \times C)$$

where the same units are used as before.

An accuracy of around 10% may be obtained with care. It is useful to remember that an inductance measured at 1 kHz will have a different apparent inductance as its self resonant frequency is approached.

10. TUNING TRAPS

Resonant traps are used to make an antenna operate on more than one frequency or to "cure" TVI. In the latter case resonant traps tuned to the transmitting frequency, or a harmonic, are used. The DO may be used to help adjust the traps to the required resonant frequency.

11. ABSORPTION METER

If the oscillator is turned off the DO can be used as an absorption wavemeter. Bringing the DO coil close to an oscillator, or an amplifier with CW excitation, and

tuning C1 will allow the fundamental and harmonic signals to be detected. If the sensitivity control is adjusted to give full deflection on the fundamentals then the relative strength of harmonics and other signals may be estimated. The transistor will rectify the signal absorbed by the DO circuit and drive the meter up scale. The DO can be very useful for checking that the generated signal, say from a transmitter, is on the right frequency. On 432 MHz, for example, instead of producing $404 + 28 = 432$ MHz incorrect tuning may give $404 - 28 = 376$ MHz.

An absorption meter may also be used as a tune-up monitor. Some DO's are equipped with an earpiece to enable AM signals to be monitored. (In theory SSB can be monitored if the DO is oscillating but in practice this is rarely achievable to any satisfactory degree.)

If a short whip is added to the DO it can be used as a field strength meter when in the absorption mode.

In all these applications the instrument is tuned until a peak of the meter is reached. Coupling and sensitivity are adjusted to give convenient indications commensurate with light coupling.

IMPROVED ACCURACY

Improved frequency accuracy can most easily be obtained by using a general coverage receiver such as the FG7, R1000, etc., to measure the dip frequency. In some cases a digital frequency meter may be connected to C to provide a very accurate frequency reading.

So there we have some of the uses of a DO. If you intend to build your own you will need a set of plug-in coil formers. Each coil should give a good 10% overlap of the adjacent coils. The DO must not have any internal resonances otherwise it will not be possible to tune each range (without any external resonant device near) without any sudden change in meter level. A gradual drop as the frequency is increased is normal.

Although a range of 0.7 to 250 MHz is possible in one instrument a simple circuit such as given here is probably only capable of covering 1.5 to 50 MHz, a still considerable range. Even with very careful layout and special components operation above 600 MHz is not practical for this type of DO. The coils are too small. Transmission line and cavity resonators are used in equipments for these and higher frequencies.

Special DO's could, of course, be made.

* * * *

WINDSCREENS

You must have all noticed that film that develops on the inside of your car's windscreen and makes vision difficult when driving into the sun.

It has been proved to be caused by the evaporation of a plasticiser from the vinyl seat covers.

A mixture of metho, detergent and water is advised as the best agent to get rid of it.



VHF UHF - an expanding world

Eric Jamieson VK5LP

1 Quinns Road, Forreston S.A. 5203

SIX METRE

Seems to me the general opinion is that in the southern areas, and VK5 in particular, six metres was rather quiet during March. There were a number of openings to JA of course, often only there with the assistance of some Es at the same time. We did hear that Steve VK3OT around 1/3 had worked VK8GB at least and some JA's whilst on his DX-pedition to the Cocos Islands; no more details at the moment.

3/3: 0100Z JA (the A index being 70 at the time), and more JA around 1330Z which is rather late. Col VK5RO must have been feeling very fit as he worked 48 of them! All areas JA1 to 0 worked. Also noted VK2 and VK4 very strong in JA. Report of KG6DX working Greece. 6/3: 1254Z JA1, 2, 7, 20/3: ZD8TC Ted on Ascension Island working VK4PU, VK8GB and possibly others around 0100Z. Ted running 10 watts. About the same time Jerry ZD7BW on St. Helena, running 3 watts, being worked. Good effort chaps, heard Tom VK2DDG also having a go. Around same time a report came through from the Bahamas that VK2DDG and a VK5 had been heard there! Reports indicate C8ADB transmits on 50.010 and listens on 52.010

21/3: JA7 and B 0240Z. 25/3: Report of YV5. Also noted Graham VK8GB has been working JA's on 2 metres so apparently such conditions still exist to there similar to previous years. Noted also that Christmas Island in the Line Islands Group in the Pacific has C32AB on 6 metres, so he would be well worth working. On this day also JA's were in and out at odd moments throughout the day, with Russian TV on 48.750 strong.

Es contacts to VK2 and VK4 being made at various times during the month and for this reason the general increase in JA contacts. JA1, 2, 8 and 0 were noted on 21/3 very strong on 50 MHz with signals spread over at least 300 kHz of the band, and some speaking in English up around 50.250 which is unusual. Hadn't heard it for some time, but JA2IGY was observed on 21/3 with quite good signals on 50.008, thus confirming it is on and on frequency. Thanks to John VK5ZBU and Bob VK5ZRO for filling in the blanks in my own observations.

SIX METRE STANDINGS

It seems the suggestion to run a Standings Box from time to time on countries worked and confirmed is meeting with some interest from various operators, and a number have already been received, plus several have since written with upgradings. I hope to have the first list in the June issue and probably upgrade each six months. Appropriate report forms are available from me

for a s.a.s.e. and these will help you to provide the information necessary so everyone can be on an equal footing during reporting. I am still looking at what can be done for two metres and maybe something can be done for this band in between the six metre periods.

LETTERS

Gil VK3AU1 reports having had a reasonable Es season, with a number of ZL openings, plus H44PT and Japan. It seems quite a few contacts were available in Melbourne after the New Year rather than before! Despite the krud from Ch. 0, on 2/1 ZL, VK2, VK4 were worked. 3/1: ZL 4/1: ZL, VK1, VK2, 6/1: VK2, VK4, VK6 and VK8GF 7/1: VK5, VK7, 11/1: P29SIX 0815 to 1030Z, VK4 12/1: VK2, 13/1: VK6, 21/1: H44PT. 22/1: H44PT. 24/1: VK4, 31/1: P29SIX, 1/2: JA8, P29SIX, 4/2: H44PT heard, also ZL, 11/2: JA, VK8GF, 19/2: VK4, 20/2 VK4, JA1, 2, 3, 4, 5 and 6. Gil tried phoning while the P29 beacon was in but could only raise a recorded voice so that didn't help very much.

Gil reports receiving several JA cards decorated with WAC's and with lists of countries worked and pictures of piles of rare countries QSL cards on six. Quite mouth watering!

As a diversion between Christmas and New Year Gil operated from a power boat on the Murray River on 2 metres in a WICEN net, and to add some spice to life took along an IC502 with 20 watt linear and halo antenna. Between net traffic he worked some excellent short skip with VK2, 3, 4, 5 and 7, and heard but didn't work VK8, VK6 and VK1. He reports it's a bit hard to crack a dogpile with less than 20 watts e.r.p.! However, he didn't consider the results too bad for an antenna only 3 metres off the water and often with 3 to 6 metre high river banks above. Also, having to contend with an outboard motor producing 20 over S9 noise all the time! The noise blinder was useful

BEACONS

Gil VK3AU1 also mentions the Melbourne 2 metre beacon is off the air at present pending a relocation. The original tower is being moved from one suburban location to another and it is expected the beacon will be located again on the tower, and probably with a frequency shift to conform with the 2 metre band plan. It is also understood VK3RGG, the Geelong 6 metre beacon, is presently off the air.

S.E.R.G. CONVENTION

The 18th Annual Convention of the South-East Radio Group in Mt. Gambier will be held over the Queen's Birthday holiday weekend of June 12-13-14th. The Convention Committee is looking to add some new events with probably more activity on the

Saturday as well.

This is a well attended Convention with a keenly contested test of strength between the South Australian amateurs and those from Victoria, and skill and fun combine to make it a pleasant weekend outing.

Also interesting to note that the S.E.R.G. will be 25 years old in 1986, the year of South Australia's 150th Anniversary Celebrations, and it is proposed to register that fact with the State Committee, so maybe the 1986 S.E.R.G. Convention will be quite a memorable one!

The S.E.R.G. Hook-up is held every Monday night at 8 p.m. local time (1030Z) on 3585 kHz with VK5SR and at the same time on 2 metres on VK5RMG/CH. 6 (Ch. 6900). Anyone able to make contact is welcome to call in.

HOW EASY CAN IT GET?

We who live in the Southern Hemisphere have known for a long time how disadvantaged we are when it comes to outstanding DX contacts on six metres, and the following snippet doesn't help to change that opinion!

Ken Willis, G8VR in Kent, caught the high MUF conditions on 14/11/81 and worked several VE and East Coast V stations crossband using a 4 metre (frequency, not length) beam for 8 metre reception and an indoor 10 metre dipole for transmission. The F77THF beacon was 9-plus for several hours on 12/11 and another, signing DL3MZ/YV5 was also strong for long periods. . . . Makes you wonder where it will all end! . . . Thanks to "The Short Wave Magazine" and Steve VK5AIM

NEWS FROM THE WEST

Graham VK6RO continues to feed me information from "CQ Japan" which is of great interest. Each month the magazine publishes a chart of reported and notable contacts on 6 metres and for a long time they have taken a lot of space with 3 closely printed columns side by side. Now, for the first time in many months there has been a decided drop off in contacts in the Northern Hemisphere with about a third of the usual space being occupied in the March 1982 issue, and with more VK3, 5 and 6 stations taking up some space. It seems the Es assistance has helped those stations further south to be heard in Japan and probably the JA stations are also being more selective in now working the lesser known and further away stations. Very interesting.

The January issue of the same magazine carries a prediction chart for Cycle 22 on 6 metres which shows a smoothed sunspot count of 120 in 1982, 60 in 1983, 50 in 1984, 35 in 1985, 15 in 1986 (the lowest point), 20 in 1987, 40 in 1988, 70 in 1989, and 100 in 1990. They aren't

sticking their necks out at the moment for 1991!

Also included in that issue were some details of early contacts in the 1950's between Bob Greenwood (VK4NG) of Rockhampton and JA1AHS, JA1AEW and JA1TL on 50 MHz, and reported in "About VHF No. 38" at the time 22/1/57 at 1330Z apparently VK4NG and JA1AEW were in QSO on 7 MHz and noted QRM and signals on 50 MHz. At 1335Z JA1AEW went to 50.1, then 50.72 and were eventually able to make contact with signal reports 5x8, later 5x9 QSL via JA1RL. This was apparently reported by JA1AHS and were the first overseas QSO's between the two stations. Equipment at the Japan end consisted of transmitter using AM, with 2 x 6AC7 valves, 2 x 6AR5, 2 x 6AR5 to a 2E26 final, running 14 watts. Modulator 6SJ7, 6SJ7 to 807, antenna 14 MHz half wave!

I think that's a fairly reasonable translation of what occurred; my Japanese is not too good. . . . SLP.

U.S.A. REPORT

From "The World above 50 MHz" QST and Bill W3XO, March 1982.

"Es in the U.S.A. produced a better than average winter season. From the QTH of Pat WASIYX in San Antonio, Texas, there were 22 Es openings on 12 different days during December for a total of 1310 minutes of propagation via the E layer. And as 1982 arrived, the conditions continued. New Year's Day brought a widespread opening that included double hop. WB2PMP/4 in Florida worked ZD8TC around 1300Z and appears to have been a Es-to-Es link up.

"Almost everyone who has been active on 6 metres over the past few months will agree that the fall of 1981 has been much better than expected, both in terms of the number of DX countries workable and in the frequency and strength of the openings. The reason we were all so surprised is that the experts say Cycle 21 peaked in December 1979 with a smoothed sunspot count of 164.5. It has always been generally believed that there is a correlation between sunspot count and the 10.3 cm flux that we are accustomed to hearing announced on WWV at 18 minutes after each hour. But WASIYX computes the daily average 10.3 cm flux for the year 1981 as 202.6. This compares with 144.5 for 1978, 193.0 for 1979 and 199.9 for 1980. The highest peak reached this cycle, 383, did occur in 1979, however, the top reading for 1981 was 305."

Also noted in QST, same issue, we note with regret the passing of Helen Harris W1HOY, widow of the late Sam Harris W1BU. Also the passing of Nathaniel Bishop, ex-W1EWM, who is credited with W6DNS, with making the first transcontinental 5-metre contact on 22/7/1938. The VHF world is the poorer for the loss of these two people!

Mention was also made that Ken Ellis G5KW had been seriously injured in a fall from his loft while putting up a 6 metre dipole. Ken was away from his normal

operating location and on holidays and wanted to keep track of band conditions. We hope he will soon be back to full health.

Moves are afoot in the U.S. to try and rationalise their 50 MHz calling frequencies. It has been suggested the "domestic calling frequency" be 50.200 MHz. The Central States VHF Conference where this matter was being aired realised that spreading the word of the change to foreign operators could be difficult, the assemblage proposed that 50.110 MHz remain the DX calling frequency. This approach was in line with the attempt by a number of Florida stations over the past few years to reserve 50.100 to 50.125 MHz for use whilst engaged in DXing. Those in VK and elsewhere could well bear this in mind. It will take a long time in the U.S. I am sure for this to be generally accepted, so in the meantime you could find some U.S. signals on either spot, 50.200 or 50.110, thus a few extra turns of the knob will tune both. Maybe we should take another look at our own operating habits on 52.050!

1296 MHz.

David VK5KK was involved in a "short" contact on 1296.1 MHz recently when he had a contact with the Central York Peninsula Radio Club station VK5AYP. This occurred on 22/3 at 0255Z over a distance of 100 feet! VK5AYP was running 1 mW to a groundplane antenna and VK5KK ran 50 watts to a 3 foot dish back on The contact was via SSB.

CONCLUSION

I would like to be able to report next month that Easter brought Australia another batch of excellent contacts as prevailed last year on 6 metres when many overseas countries were worked on the Easter Monday. As I write this my calendar tells me Easter is not far away so we will soon know!

Closing with the thought for the month: "No one is rich enough to do without a neighbour." 73. The Voice in the Hills. ■

WATT IS ELECTRICITY

from "Summerland ARC Newsletter"

Electricity is a colourless odourless gas which burns with a bright flame.

Light grows from a bulb.

An amp is a little animal that crawls along a wire.

An Amp lives in an OHM. In summer an AMP lives in a COULOMB. POLARISATION is the changing of an OHM into a COULOMB.

An AMMETER is an animal that eats AMPS.

A BATTERY fires AMPS round a CIRCUIT. An AMP rides round the CIRCUIT on a MEGACYCLE. MEGACYCLES are parked on a GRID. Flemmings Right Hand Rule states that: All AMPS must ride their MEGACYCLES on the right hand side of the wire. A CHARGE OCCURS when all the AMPS run down the CIRCUIT at the same time. All AMPS meet at an ACCUMULATOR.

An OERSTEAD is an OHMDEAD FOR ORSES.

A JOULE is a fight between two AMPS. You receive a shock when an AMP isn't wearing any shoes.

EDITOR'S NOTE When WATT had read this he invented the STEAM ENGINE as a decent alternative . . . and was then prematurely retired to the old VOLTS OHM.



10 MIN. REVELATION IN JAPAN

On 1st March, 1982, Mr. Noboru Minowa, the Minister of Posts and Telecommunications, gave permission to Mr. Shozo Hara, President of JA1RL, for JA amateurs to use the 10 MHz band as follows.

1. Assigned Center frequency 10.125 MHz.
2. Classes of emission permitted. A1, A3J, A3A, A3H, F1, F4 and F5, however, in no case the occupied bandwidth shall exceed 3 kHz.
3. Frequency band permitted to work: 10, 10.100 - 10.150 MHz.
4. Maximum power permitted, 500W for those stations provided with a frequency measuring instrument, and 10W for those provided with no frequency measuring instrument.
5. Amateur stations using this band shall cause no harmful interference to the stations in the Fixed Service using the same frequency band.
6. Amateur stations are permitted to begin the operation on this band from 1st April, 1982.

For bandplaning of this band, JA1RL already decided that only narrow-band methods of transmission should be used within the limits of classes of emission permitted, whilst following the international decisions by the IARU regional organizations.

3rd March, 1982

Shozo Hara JA1AN
President of JA1RL ■

Taree Amateur Radio Club

(Notes from AGM)

The continued growth of interest in Amateur Radio on the mid-North Coast of N.S.W. was well demonstrated by the excellent attendance at the Annual General Meeting of the Taree Amateur Radio Club. Twenty-eight (28) interested operators with many friends and associates attended the meeting to review a successful year's activities.

The Club President, Geoff Hunkler VK2BGF, elected unopposed for yet another term (congratulations, Geoff — a terrific example of service to A.R.) received the full support of members a planning may move social meetings for 1982. These social get-togethers alternated with regular business meetings, certainly keep the Club ticking over.

WICEN Co-ordinator, Chas. Withers VK2BVI, reviewed a busy year which included assisting in the search for missing aircraft in the Barrington Tops area and co-operation with the VRA unit. He also forecast significant involvement in the 1982 Southern Cross Car Rally which is expected to be a major project for 1982.

A presentation was made to Mag Stielh VK2AHQ, who had served most efficiently as Sec/Treasurer for two years and had finally achieved her great goal of a full call sign. Mag is a real inspiration to anyone who has despaired of ever achieving 10 w.p.m. more. Persistence really does get its reward in the end.

From Mike Richardson VK2BVQ, Hon. Sec ■

Foosie Department

During photographing by the printer, prior to printing, of the computer program for Great Circle Maps, page 16, April 1982 AR, part of line 530 had been cut off.

Line 530 should read:
530 PRINTAB(S); A\$; TAB (30); C\$; TAB (50); H; TAB (80); D; TAB (70); K ■

HOW'S DX

Ken J. McLachlan VK3AH
PO Box 39, Mooroolbark 3738



As indicated in a stop press heading in this column last month CHINA is on the air but for the present you will have to blow the dust off the key and listen around 21037 MHz if you intend to have BY1PK in the log. They (it is a Club station) have been taking up residence around this frequency at 02.00 to 03.00 UTC daily. Genuine reports of working the station and any QSL info would be appreciated.

forwarded to this QTH at regular intervals over a long period and it is believed every conceivable aspect from welfare of the crew, medical supervision, media coverage, to the invitation of trained DX operators who have additional skills to offer on such an expedition embarking to the Antarctic.

Many prominent names regularly appear throughout the copy received and more are being added weekly. Present planning intentions for the multi thousand dollar excursion to the Antarctic wastes is late '82 or early '83.

As with other projects of this nature finance has and is a major problem because the Australian operator genuinely interested in DX is a small percentage of the Amateur fraternity and an infinitesimal part of our country's population, therefore assistance has been sought from areas which carry a high density amateur population.

To go or not to go has yet to be decided, because of the reluctance of some DX Foundations to commit many thousands of dollars which is members subscriptions and donations to such a project, as they have lost out previously and had their fingers singed by unscrupulous organisers who have done the wrong thing.

Whether it goes ahead or not, it is my personal belief that the basic conception of the proposed venture should be shared with all readers so that they may quote it to their overseas friends. This will dispel rumours and save the embarrassment of not knowing what is going on in one's own backyard and getting away from the "I can't tell you, it's secret" syndrome, and it is intended to bring you up to date with progress of the group's goal monthly.

This will be a true and accurate report which will be exclusive to AR culminating in a lengthy pictorial article of the actual happenings en route, on the islands and the return back to the home port. So for up to date progress follow each month's summary and when discussing it please emphasize the source of your information.

Personal opinion is that it is a credit to the very small talented group who have dug deep into their pockets with no hope of recouping the massive initial expenses incurred, so that VK amateurs will be recognised as a progressive DX country which is giving a non-profit-seeking contribution to the specialized facet of DXing which is part of our hobby.

BUSY, BUSY, BUSY
25,720 contacts in one year This incredible number is the total of QSO's that

Dick KV4AA made in 1981. Dick retired from day to day chores so he could become more active on the bands, and I think these figures proved he has achieved this as his total for the six year period from 1976 is now 195,000. A friendly greeting and a quick QSO before Dick has his breakfast, can be had by VK's on 14.202 MHz when the band is open. Dick's QSL's are 100% either direct or via K6PBT

ISLANDS

JOHNSON ISLAND
WB0MKR/KH3 is operating from Johnson Island and the news is that he will be there for the rest of 1982. Particularly active on 20 metres QSL manager is KB2RV.

UCKLAND ISLAND
ZL3AFH/A can frequently be heard around 14.005 MHz at 0730 UTC.

MACQUARIE ISLAND
Liet of those wanting to work VK0AN are quite often taken by VK6AJW or VK6IH, whilst VK0AN is often found around 14.165 MHz on Saturdays at 1000 UTC.

WILLIS ISLAND
14 332 MHz is a good place to keep an "ear to the radio" for VK9ZH. Tony meets Gill VK6YL, his QSL manager, each Tuesday and Thursday at 0930 UTC on this frequency. He is also frequently heard on the Open House Net, same frequency after 1030 UTC. Tony will be on the island until June and as yet it is not known if there will be an amateur in the replacement crew.

TUNISIA
For the next two years 3V8AA will be in Tunisia to complete his five year contract Fridays on 28.605 MHz at 1400 UTC is a good place to hear him, and at other times he can be found near 28.535 MHz.

THE COLVINE
As many would know, Irls and Lloyd recently spent a very successful time in Guyana. During their 20 days there they worked 144 countries and had in excess of 3000 contacts. VK's had their fair share via the courtesy of the Caribbean Net and many gained a new "YL" country as a bonus.

DX SILENT KEY
Bob Roberts 9K2DR passed away suddenly in January Bob was a very popular and well known DXer from Kuwait and his QSL card with the crowing rooster on it would have been a very welcome "new one" to many. Bob will be sadly missed

CW ON THE NEW 10 MHz BAND
There appears to be plenty of activity on the new 10 MHz band since January 1. Plenty of G stations have been heard and



EXPEDITION: VK0 HEARD

Over the last few months a small group of dedicated DXers from VK6 have been unobtrusively investigating the viability of launching a genuine attack at removing VK0 Heard Is and from the top ten wanted DXCC countries.

This group, who call themselves the VK6 DX CHASERS CLUB, in their own quiet way have joined forces with a combined mountaineering, photographic and scientific expedition which is prepared to stay in the area for a considerable period.

All are long standing members of the Institute and for no personal gain or reward wish to see this lonely Australian island activated in the Amateur spirit following up with a pipeline QSL arrangement that will leave no doubt to the genuine card seeking DXer that he or she will receive the much sought after pasteboard for working a new country, promptly and at a minimum financial outlay.

Copies of all correspondence concerning every aspect of the operation have been

work. Many are inquiring why there are not very many VK's to be worked. Kevin VK3AUQ has worked well over 200 different stations in less than three months and he has not even been trying. Some of his better countries are, C6, DL, EA, HB9, HB0, LA, LX, OE, VP2E and so the list goes on.

PREFIXES 6D AND XF

These prefixes emanated from Mexico and were used to celebrate the 50th Anniversary of the League Mexicana.

For QSLing the prefixes are sorted thus: XE1 = 6D5 or XF1; XE2 = 6E5 or XF2; XE3 = 6F5 or XF5; XE4 = 6J5 or XF4, suffixes still remain the same. (e.g., 6DSCI would be Nellie XE1CI.)

Cards are 100% compliant to the operators BUT the way a couple of operators were quoting their QTH's it would be wise to go direct if you really want the card otherwise cross fingers and via the QSL Bureau:

"NO" QSL BUREAU

THERE IS NO QSL BUREAU ON MONTSERRAT . . . A few years ago some visiting amateurs set up a QSL bureau on Montserrat, stayed a short time then left behind all that they had started. As the Montserrat Amateur Radio Society does not intend to establish a bureau there all stations operating from Montserrat should nominate their QSL route being either to the home call direct or via a nominated manager.

This information from Alex VP2MM also states he is not a QSL manager for any station although it is listed in the latest American callbook.

CLYDE VALLEY DX GROUP

A group of amateurs from Strathclyde in Scotland have formed a DX group and intend mounting a major assault on the four extreme points of Scotland during a three week period in August 1982, exact dates are yet to be finalised.

The points to be tackled are:

1. Mull of Galloway (South)
2. Ardnamurchan Points (West)
3. Dunnet Head (North)
4. Buchan Ness (East)

The expedition hopes to operate from each location in turn beginning at the South point then West, North and East in that order. Two stations will be operating continuously for 48 hour periods from each location, covering most of the HF bands.

Each of the four locations will issue a distinctive QSL card for that location and contact with all four locations will entitle the successful station or SWL to claim an exclusive certificate.

A special call-sign, GB4GM, has been issued for the duration of the expedition.

Further Information from: Gordon Hunter GM3ULP, Clyde Valley DX Group, 15 Quarry Road, Law, Carlisle, Strathclyde, Scotland

Z8SCS & Z8SDC, John and Diane

A bedroom that overlooks a valley jutting out into the sea, looking out to a harbour on one side and the Indian Ocean on the other and a lighthouse shining down upon

them after dark, a garden with such tropical shrubs as pawpaws, avocado, poinsettias and hibiscus and a large swimming pool. Envious? This is the idealistic life of John and Diane.

John and Diane's interest in radio stems from wartime when he was in the Royal Corps of Signals and 2nd Independent Parachute Brigade and Di was in the WRNS Royal Navy Communications as a Bunting Tossler.

About 6 years after the war ended John and Diane uprooted themselves from England and headed to Kenya to try their hands at farming. During their seventeen years of farming they became involved with a radio scheme which helped the lonely farmers and elderly which in turn encouraged them both to get back into Amateur Radio. Both passed the necessary exams. A Heath do-it-yourself kit and a dipole helped them to work the world whilst living on the side of an extinct volcano looking across Lake Nakuru which had half a million flamingoes on it.



Diane Z8SDC

Eventually Government changes made it necessary for them to move on and the move was to Mahe in the Seychelle Islands living right on the beach. As there was no reciprocal licensing it was necessary to sit for the exams again and then they found what it was like to be a much wanted prefix. Di was issued with the call VQ9DC and John claimed VQ9EP. Operating was a ball from Mahe with a DX-pedition to Desroches thrown in for good measure. In the first week 140 countries were worked.

As Diane has severe arthritis they decided to settle in Durban on account of the climate and life seems to be a "ball". They are both members of the Police Radio Reserve which necessitates a few evening watches each week, they are both very interested in theatre, opera, ballet and most music except loud disco. Diane enjoys knitting and tapestry and most particularly "her radio hobby". John is a member of the Royal Signals Radio Society and Diane belongs to the RNARS and would love to get into a VK RNARS Net. Any time that is left is taken up with reading.

The current gear is a HW10 GRP rig, a 9 year old KW2000E and a TS120S to a



John Z8SCS

TA33 Jnr aerial 30 feet high which is the legal height for their area, and two metre VHF equipment is also close at hand.

Diane can be heard quite frequently on the ANZA net and loves to talk with as many people as she can find.

KENWOOD CONTEST

The Kenwood Contest, with a prize of a TS 830S has been won by Don Howison VK2DXH. Don has worked extremely hard for two months to carry off the prize in this contest and is now eagerly looking for time to operate his new rig.

Don is also building a 5 element band-pass yagi for 20 and 15 metres in his spare time. Good DX Don and enjoy that hard earned prize; perhaps you will "wet its" head with a new one, country that is.

BOUGHT AFTER

Active in the WPX contest and much sought after was 1AOKM. Under the control of Mario 10MGM, which is the QSL route, this operation went like a well tuned Rolls Royce—three to four contacts per minute was the going rate for a couple of hours as heard in VK and some of it was heavy going, particularly when short skip conditions were in to neighbouring European countries. The operators were in contro at all times, quite a change to some operators that are heard when faced with a challenge.

PENGUIN DX???

Allan VKCAN will be signing /P probably by the time you are reading this. He proposes to carry the transceiver and the vertical he will use as a "back pack" about 12 kilometres across undulating terrain and camp in one of the six Biology huts which are scattered around the island. Each hut has a generator, gas heating and adequate canned provisions, these being serviced by the Supply Ship when it visits each year for the change of crews. Allan, good luck, good DX and don't forget your log book as it is a long walk back to camp!

TRINIDADE

PY0TA/B. If you were one of the lucky ones, QSL to Ricardo de Souza Carvalho, R Capitoa Resende 206, C/10, Apto 201, Cachamba 20780, RIO DE JANEIRO.

Even though this QTH is that of PY1VOY, it would be prudent not to use the call

sign on the envelope and the stamps could use some special treatment before being posted.

SCANDANAVIAN QSL's

Stig, LA5NM wishes all to know he is now QSL manager for the following stations: JW5J, JW5NM, JW5FD, JW6KT, JW8LU, JW9UV, JX3P, JX7FD, EA6ET, ED6ET, HM1TR, HM9A, HM0S, HSIAMB, LA1H, 9V1VV and 9V0VV.

The awareness of DX and sharing it with fellow Amateurs seems to be catching, as the credits are growing each month and this allows a broader coverage to be documented from all over VK Ladies and gentlemen, thank you one and all, particularly to my XYL Bett for her assistance in preparing and correlating the column and calls such as G3NBO, VE2AFU, OK1MP also WORLD RADIO, QTC and RADCOM for info and ideas. From VK I would be remiss of me not to mention the following contributors: Eric L30042, VK's 20PN, 2DXH, 3UX, 3PA, 3AUQ, 3BOE, 3DFD, 3DHF, 4AIF, 5HD, 6IH, 6NE, 6XI and 6YL.

Good DXing. 73.

LISTENING CW WITH ERIC L30042

11 MHz:
JA's VK9NS, 302WR.
7 MHz:
C3MZU GTIUP, G3UOF, HK3YH, KP2A/KP1, O2ZWZ, LUTAR, S2AT, VK2R/LH, VK9NS VK8KT, VK9Y, VK9YH, VK9YT, VP5EV XZ8BOC ZMTVU, 4X4FU.

14 MHz:
CL2GG/VYS, DL3DO, F8QFN, G3MID/A, G8H8EG, G3IVJ.
14 MHz:
COTL, GJ7UX/EAS, FM7WA, H3JIF, HK1AMP, H2AB, VK9NM/LH, VK9NS, VK9YT, VK0AM, VOGCW, UZ3BAX, ZMTVU, 4K1H, 457WP, 5W1DC, 624CX, 9-280.

21 MHz:
CX10Z, E8BNC, HL1AQ, HP1XEK, JD1BAK, KV4CI, LUNBJ, V7DO, T30AT, VK8NL, VK9YC, VQ2CW, VP2MIX, CR1EB, VY4AU, ZF2FR, 5W1DC, 5H1CH.
28 MHz:
AXJUP, X86BK, D2P1 (2145Z), EL0AU/MM3, KL7PZ, KATJUP/KH2, LU2OCJ, P2PFS, SL3AG, RA3RKO, UA5OGB VK9KM, VK9YC, VK9YM, V85EV, VU2VTM, YB0ACP/5, YV1DTL Y55XL, 3889H.

QSLers OF THE MONTH

1/1CW: E1BEK, P8AA, P8QAP, G3HTA (30 MHz), C15IC, H10QO, HL1CX, J28CI, O4AFV, SV1GR, T128Q/A, VP9CB, XE1HMT, ZK2AD, ZL3AFH/A, 5W1DT, 8P9QL.

DXL MANAGER

302WR (J47HCF), EL0AU/MM3 (VS86PI, VK9NM/LH 01J3CG, ZMTVU, P8QTO), 5W1DC (DL3GU), T90AT (G3GZF), VP5EV (K84D).

5B WORKED ON THE EAST COAST

14/3V8DX, 14/4UJUN, 14/5V7RE, 14/8P8AB, 14/ 027BN, 14/9Q5MA, 14/CP1DM, 14/FC9UC, 14/ HZ1TC, 14/J73RM, 14/JT1AO, 14/T80UB, 14/ S79WHW, 14/T7FST, 14/VK9YM, 14/VP2MO, 14/VP2VD, 14/VF8AN, 14/WBPL, 14/Z8BJ, 14/ ZF15B, 14/ZK1CG, 21/T32AE 21/VK6FOD, 28/3V5AA, 28/5V8W.

5B WORKED ON THE WEST COAST

1/1CW: DL1RK, DL7HU, G3RFS, G4AKY, GM32SP, G3W3YD, JH0FXF, KP4KK/DU2, VK3YM, W4OWJ, W6RW, W8ANO.

1/1BSE: VK9YM, W1MZ

2/1BSE: 3C0AC

3/1CW: 302VU, 5W1DC, 5Z4CS, A4XJO, E1BJ, E1BH, G3IVL, GU5DS, T30AT, U7LCAO, U8MPAC, Z55LE

7/1CW: J3AYT

BE HEARD ON THE WEST COAST

1/1CW: 5Z4CS, LA1EKO, OH2XK, OK1DFD, U8XCF, 3/1CW: J3AYT, O4AAWD.



EDUCATION NOTES

Brenda Edmonds VK3KT
86 Baden Powell Drive, Frankston 3199

The appearance on the market of a couple of new Novice textbooks prompts a few comments on books available.

Two new books—"Intro Electronics" produced by the WIA NSW Division Education Service and "The Novice Operators Theory Handbook" by Graeme Scott and Sandy Brucesmith, both appear to be very useful additions to the resource material for Novice classes. I would like to discuss these and a few other examination manuals next month.

What is pleasing is the increased range of books available in recent years, and the more ready supply of them by suburban booksellers. Perhaps this is another spin-off from the CB boom.

The DOC Novice syllabus suggests as texts the ARRL and RSGB handbooks or the Radio Handbook (Editors and Engineers, Ltd.). I have not seen the latter—I haven't really hunted for it—but I think most people would agree that both the ARRL and RSGB are rather daunting for the real beginner. Many Novices graduate to them quite soon, and find their value as a reference for later on.

I personally prefer the RSGB, despite the extra cost, for explanations, diagrams, and readability. However, the two volume format does mean that the section you want is usually in the volume you can't find at the moment.

For some years our classes have used the New Zealand Basic Radio Training Manual. This is much less elaborate than the others but still more detailed than necessary for Novice level. It conforms

fairly closely to our Novice Syllabus, and is reasonably easy to understand.

Another useful small volume is "Basic Electronics", published by Electronics Australia. This is probably the easiest to read, as it is written in a very informal manner with historical background to some sections. It includes notes on Hi Fi and television, but nothing on interference. A reference index at the end would be a useful addition.

In the "Teach yourself" series, "Radio", by David Gibson (Brockhampton Press) is a simple, well illustrated volume which some students have found helpful as a starting point. It is now a bit outdated—although there may have been a new edition since my copy. It deals only with components, receivers and antennas—no transmitters, test equipment, propagation, or interference.

If any of you have references which you consider especially useful for any section of the course, I would be interested to hear of them. Many instructors would welcome a reference list matched to the Syllabus.

Best wishes to all who are sitting for the May exam. If there is any way I can help, please let me know. For those who are unaware, I now have enough D.O.C. exam tapes to fill a C80 tape at both 5 and 10 w/m. If anyone has sent me a tape for copying only, and not received a reply within a reasonable time, please write again in case the system has broken down.

* Items thus marked are normally available through Divisional Book Sales.

INTERNATIONAL NEWS

NEIGHBOURHOOD

DOC has announced the completion of reciprocal licensing arrangements between Australia and West Germany for nationals of each country. The licence equivalents

are:

Australian	W. German
Full Call	Class B
Limited Call	Class C
Novice Call	Class A

IARU

The membership of the IARU at the end of 1981 stood at 113. The last two societies to join were those of San Marino and Andorra.

CHINA

Six delegates from JARL, by invitation of the Radio Sport Association of China, visited China from 17th September last year. A visit next day was made to the station housing BYIPK in a room of the China Radio Sport School near Tianan

Park in Beijing (Peking), a new school building, including a shack for BYIPK was under construction; 3-element yagis mounted on the roof were in use for SWL purposes. A visit to Hangchow found the delegation talking with a group sailing radio-controlled model yachts on Lake Xi for which no licences were needed. They visited Tunxi and joined in the national fox hunting contest on foot using the 80m band. The visit concluded with discussions about amateur radio in Shanghai.

WORLD STATISTICS

Latest IARU statistics showed there were 1,148,157 radio amateurs in the world. In round figures 195,000 in Region 1, 481,000 in Region 2 and 471,000 in Region 3. Main centres of amateur populations were Japan 446,000, USA 392,000, W Germany 42,000, USSR and Argentina 26,000 each, UK 25,000, Canada 21,000, Italy 17,000, Brazil 14,000 and Australia 13,000.

AR SHOWCASE



MICROCOMPUTERS

It has been four years since Tandy first introduced their TRS80 Microcomputers to Australia.

Firstly we were introduced to the Model I which was highly successful, then followed by the Model II which was aimed at the businessman and not for the personal or educational user.

This had to be rectified and in September 1980 the TRS80 Pocket Computer evolved. This fully-contained Pocket model weighed 170 grams, and had a computing power of 1.9K of RAM which was extremely useful for many applications ranging from engineering and aviation to personal finance, education and entertainment.

April 1981 saw the introduction of the TRS Model III, a desktop model which fits many applications for home, school or business.

Now, in 1982, we have the TRS 80 Color Computer. This computer makes computing enjoyable for the whole family and is easier to use with its many features such as the instant loading Software Paks, vivid colour graphics, programmable sound, expansion disks and Joysticks, and Color Computer connects simply to any colour television set.

For further information contact Tandy Electronics, P.O. Box 229, Rydalmere, N.S.W., 2116, or your nearest Tandy dealer.

MOBILE DIPOLE

Scalar's Ground Independent Antenna models are designed for use on vehicles where a groundplane is either not available or is insufficient to use a standard whip antenna.

They are efficient alternatives which overcome customer objection to the drilling of holes in the vehicle roof, or where

it is not practical to instal a standard mobile whip antenna in the roof due to obstacles such as racks, ladders, beacon lights, etc. They are specifically designed for use with a guttergrip, boot lid fitting, wing mirror on larger vehicles or ski bar clamp.

Two models are available:—

1. Covering the frequencies 140-180 MHz. Cat. No. 'GRH'.
2. Covering the frequencies 450-520 MHz. Cat. No. 'GRN'.

Both are field tunable to frequency. Both are ideally suitable for use by amateurs in the 2 m and 70 cm bands.

Available now from any Scalar office in Melbourne, Sydney, Brisbane or Perth.

NEW ANTENNA

Vicom International Pty. Ltd. announce the availability of three new vertical antennas. All are of rugged construction for long life and are supplied with high quality hardware.

The GPV5 is a 2m collinear comprised of two $\frac{1}{4}$ waves in phase with decoupling radiators. Height is 3.1m. Gain is approximately 6.5 dB.

The GPV7 is a 70 cm collinear comprised of three $\frac{1}{4}$ waves in phase. Decoupling radiators are also fitted for optimum performance. Height is 1.7m. Gain is 6.8 dB.

The GPV720 is designed for operation on 2m and 70 cm. Design is again of the collinear type. Height is 1.1m. Gain on 2m is 2.6 dB and on 70 cm 5.7 dB.

All three are now available from Vicom International Pty. Ltd. at 57 City Road, South Melbourne (03) 82 6931, or at 339 Pacific Highway, Crows Nest (02) 436 2766.

"SATELLITE TVRO DIGEST"

An announcement came recently from GFS Electronic Imports of Mitcham, Victoria, that they would soon have available, on a subscription basis, the new magazine "Satellite TVRO Digest".

The magazine, published monthly by Satellite TVRO Technology, Iowa, USA, is a technically orientated magazine designed around the construction and applications of equipment within 3.7 to 4.2 Gigahertz satellite TV band.

Some examples of features included in Satellite TVRO Digest over the next few months are articles on: GASFET LNA Biasing techniques, 70 MHz IF strip, LNA Downconverter Combinations, Audio Demodulators, PLL divide by 2 demodulators, Single Conversion Image Rejection receivers as well as systems articles on such subjects as Digital TV and Block Conversion Receivers.

Twelve months subscription rates are \$80.00 and further information can be obtained from GFS Electronic Imports, 15 McKeon Road, Mitcham, Victoria, 3132. Phone (03) 873 3939, Telex 38053 GFS.



NOVELTY WALL PLAQUE/ASH TRAY

As a side interest to amateur radio, Bruce Saxon VK3BWX and his wife Pam VK3NSB, produce novelty pottery ware.

Among the pottery they produce is a specially designed ash tray/wall plaque.

The plaque is fully glazed with a high quality deep golden brown finish, measuring 18 cm x 27 cm.

They are custom made with your own individual call sign embossed in white on a maroon background.

There is provision on the back of the plaque to insert a piece of string etc. to enable it to be wall mounted.

In my opinion the plaque is too attractive to be used as an ash tray, so mine is mounted in a prominent place on the wall of my shack.

The cost of each personalised plaque is \$10.00 (allow \$5.00 extra for certified mail) and covers cost of production only.

Delivery date is approx. 6 weeks from date of order.

Something new, novel, professional and different for Australian amateurs.

OVER 33,000
CHANNELS

J.I.L.SX-200



J.I.L.

Monitor thousands
of frequencies

FEATURING
• Airband
• Australian
low-band



A range of accessories is available including Broadband or High Gain BASE Antennas

PROGRAMMABLE SCANNER DOES IT ALL. 26 - 180MHz, 380 - 514MHz.

SPECIFICATIONS

- Type. FM & AM
- Frequency Range
 - a) 26-57 995 MHz Space 5 kHz
 - b) 58-88 MHz Space 12.5 kHz
 - c) 108-180 MHz Space 5 kHz
 - d) 380-514 MHz Space 12.5 kHz
- Sensitivity
 - FM a) 26-180 MHz 0.4uV S/N 12 dB
 - b) 380-514 MHz 1.0uV S/N 12 dB
 - AM a) 26-180 MHz 1.0uV S/N 12 dB
 - b) 380-514 MHz 2.0uV S/N 12 dB
- Selectivity
 - FM More than 60 dB at 25 kHz
 - AM More than 60 dB at 10 kHz
- Dimensions 210 (W) x 75 (H) x 235 (D) mm
- Weight 2.8 Kgs
- Clock Error Within 10 sec / month
- Memory Channel 16 Channels
- Scan Rate
 - Fast 8 Channels/sec
 - Slow 4 Channels/sec
- Seek Rate
 - Fast 10 Channels/sec
 - Slow 5 Channels/sec
- Scan Delay: 0, 3 or 4 seconds
- Audio Output 2 Watts
- Ant Impedance 50-75 ohms
- Whip or External Antenna with LO/DX Control (20 dB ATT)
- Freq Stability
 - 26-180 MHz Within 300 Hz
 - 380-514 MHz Within 1 KHz

The JIL SX-200 represents the latest **STATE-OF-THE-ART** technology in the development of Scanning Monitor Receivers. It has many features that previous have not been available on receivers of its type

For example the tremendous frequency coverage, which encompasses all of the following bands — HF & UHF CB, 27 & 155MHz MARINE, Australian LOW BAND, AIRCRAFT band, VHF SATELLITE band, 10Mx, 6Mx, 2Mx and 70CMx AMATEUR, VHF HIGH BAND and UHF TWO-WAY band as well as many others. Other features include detection of AM or FM on all bands, Squelch Circuitry that can be used to **LOCK OUT** carrier only signals, Fine Tuning control for off channel stations, 240 VAC plus 12VDC operation, Squelch Operated Output that may be used to trigger a tape recorder or channel occupancy counter and accurate Quartz Clock



\$512



\$8 P&P

ACCESSORIES

- Service Manual \$10 + \$1 P&P
- Scan-X Base Antenna \$48 + \$8 P&P

JIL SX-200

A BETTER SCANNING MONITOR RECEIVER

HIGH QUALITY AND PERFORMANCE

JIL have designed the SX-200 as a high quality, high performance programmable scanning receiver at a realistic price, design criteria which are not born in many other receivers of its type.

MECHANICALLY RUGGED

The JIL SX-200 is ruggedly built using EPOXY-GLASS printed circuit board and double sided through hole plating techniques. Easy access and servability is maintained throughout its design.

4 BIT MICROPROCESSOR WITH ONBOARD ROM AND RAM

A powerful 4 Bit PMOS Microprocessor, the uPD553, is used as a controller in the SX-200. Its features include 2000 x 8 ROM and 96 x 4 RAM onboard as well as up to 80 instructions with a 3 level subroutine stack.

EXTREMELY LOW SPURIOUS COUNT

Even though the SX-200 covers over 33,000 Channels JIL, through careful design, have been able to reduce the number of internally generated spurious signals to an extremely low level. Not the case in most other scanning receivers.

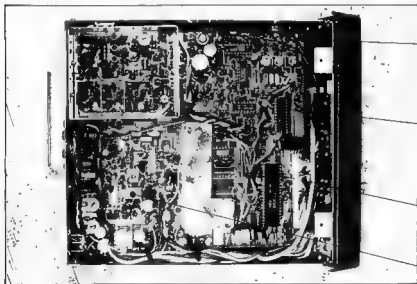
Monitor thousands of frequencies including many Military & Civil

HF-VHF-UHF



FULLY TRACKED RF AMPLIFIERS

The SX-200 makes use of 3 separate RF Amplifier Stages. They are divided into 6 bands, each band having its own electronically switched coils which are fully tracked with the receiver frequency using Varicap Diodes. Maximum performance is thus gained over the entire operating range of the set.



Rugged Double Sided Epoxy Glass Circuit Board

2K Cmos RAM

4 Bit Microprocessor

Crystal and ceramic I.F. filters.

SX-200, RUGGED CONSTRUCTION AND EASY SERVICABILITY.

AVAILABLE FROM

W.A.: Letco Trading Co. (09) 387 4966, N.S.W.: Electronic (02) 211 0531, QLD: CW Electronics (07) 397 0808, S.A.: Jensen Intersound (08) 269 4744, Plus many other regional outlets, contact GFS for your nearest stockist.

AUSTRALIAN AGENT & DISTRIBUTOR

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Telex: AA 38053 GFS /

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DURAL —

25 Years of Service

by Jeff Pages VK2BYV
62 First Avenue, Berala, N.S.W. 2141

After many trials and triumphs Dural, the official home of VK2WI, this month celebrates its 25th anniversary.



Late Jim Corbin VK2YC, Div. Pres., turning the first sod on 8th August 1956.

In the mid-1950's the NSW Division of the Wireless Institute of Australia purchased a 5 acre property at Dural, a semi-rural district approximately 25 km north-west of Sydney. This was to be a home for the Division's station VK2WI, and in May 1957 the building was officially opened. The original transmitting equipment consisted of a BC610E 500W AM transmitter, two AT14 350 W AM transmitters and a 100W two metre AM transmitter. Broadcasts were conducted on Sunday mornings on 80, 40 and 2 metres, and the station was also used for weekly WICEN nets.



Official opening, 15th May 1957.

BURGLARY

Throughout the 1960's the station conducted the WIA broadcasts until in 1969 the site was burgled and much of the equipment was either taken or damaged. As a result the broadcasts were transferred to the Division's Crows Nest station (VK2AWI) until such time as the Dural facilities could be restored.

Considerable work was carried out during the early 70's. A few broadcasts were conducted from Dural, and this period also saw the establishment of the Division's 2 metre repeater and VHF beacons. However, for various reasons the attempts at restoring the broadcast facilities were unsuccessful, and the broadcasts continued to be conducted from Crows Nest.



First station as it was at Dural in 1957.

REPAIRS

Such was the state of affairs when in late 1977 the Dural Committee came into existence with the aim of establishing an 80 metre transmission from Dural to supplement the 40 metre transmission from Crows Nest. One of the first jobs was to bring the building and grounds back into some semblance of order, and several working bees were held to paint the interior of the building and cut back the undergrowth.

NEW TRANSMITTERS

An 80 metre dipole was strung up and an attempt was made to fire up one of the old transmitters, but this produced more fire-works than RF and was soon abandoned. At about this time three AWA J54800 transmitters became available and these were snapped up as they were in quite good condition. Indeed, before long, one of the new transmitters was producing a healthy 500W of AM on 80 metres.



Working bee on 12th August 1966 with (l. to r.): VK2's EO, GE, ANP, AAJ and EN.

On the VHF side, the 2 metre repeater was in the process of being upgraded, and was used as a source of broadcast audio for the other transmitters. The original 6 metre FM transceiver, an AWA B550, was repaired and returned to service on 52.525 MHz. Audio from the repeater's receiver was routed through a solid state 8 channel distribution amplifier to the rest of the station. Transmitter selection was from a small panel of illuminated pushbuttons which operated a rack full of relays connected by a maze of jumper wire. A valve amplifier drove a monitor speaker in the control room, and the whole system regularly crashed when relay contacts fouled. Still, in spite of these difficulties, the station continued to gradually take shape. A big improvement took place when 70 cm links were installed to convey program from Crows Nest. An additional 2 metre FM transmitter was also installed to provide automatic linking into the Central Coast repeater, and later, repeaters in Wollongong and Oberon also joined the network. Three wooden poles 20 m in height were erected to replace the collapsing guyed poles which had previously supported the HF dipoles, allowing the 80 and 40 metre antennas to be properly installed.



Front view of station building.

In 1979 there were rumblings of discontent from listeners on 40 metres who were receiving a poor signal from Crows Nest. Tests were conducted from Dural using a borrowed SSB transceiver and the results were so good that this almost became permanent. Attempts at getting the J54800

earmarked for 40 metres operating had proved less than successful, until in mid-1980 500W of AM burst forth onto 7146 kHz. Many were sceptical about using "ancient modulation" but the 40 metre transmitter proved to be an instant success. The 80 and 6 metre transmissions from Dural were on relatively minor frequencies as far as broadcast coverage was concerned, but the appearance of a solid AM signal on 40 metres really had an impact, and this event was a significant milestone in the restoration of VK2RWI.



Dural's antenna towers. Left is the 12m tower with beacon and 6m antennas; right is the 30m tower with 70 cm and 2m repeater antennas and link antennas.

A REPEATER

From here on things moved quite rapidly. The 70 cm repeater (VK2RUS) was established at Dural and became part of the broadcast network, and a 60W 10m SSB transceiver was added to provide local coverage on this band. This left only 6 and 2 metres SSB originating from Crows Nest, and plans were drawn up for a combined 6 and 2 metre SSB transceiver for Dural. The time had come to seriously consider originating broadcasts entirely from Dural, and with this in mind Divisional Council approved the construction of a new station audio and control system to replace the rack of relays.

In fact time was running short for the old audio system as the addition of the 6 and 2 metre SSB facilities would have exceeded the number of audio channels available from the distribution amplifier. It was decided from the outset that the new audio system should be carefully designed and not just thrown together, and in fact several ideas had been put forward at various times since the formation of the Dural Committee.

CONTROL ROOM

The control room at that stage consisted of two booths, one of which was fitted out with acoustic tiles and contained the control panel mentioned earlier. This was to become the new studio, and the other booth became the engineering position. Two surplus AWA console frames were obtained and these became the basis for the studio and engineering consoles. In preparation for the new system, 16 ten-pair cables were run from the engineering booth to outlets in the transmitter room, carpet tiles were purchased and laid in the control room, curtains were fitted to the outside window and the desktops were covered with laminex. At the end of 1980 the old audio racks were ceremoniously dismantled and an interim audio system was installed to provide continuity of service until the new consoles were completed.



Three J54800 AM transmitters with matching power supplies. Far left is a rack containing beacons with 6 and 2m SSB transceiver on top.

In July, 1981, the studio console was completed and the Division's two broadcasts were transferred back to Dural. Construction of the engineering console took a further six months, and in January, 1982, the new audio and control system was completed.

Each console may independently select any combination of up to sixteen transmitters and receivers. For broadcasts, the consoles are linked together so that audio from the studio is routed through the engineering console. This leaves the announcer free to concentrate on his job of reading while the engineer has full control of the station. To simplify the engineer's job, the system is preprogrammed with two combinations of transmitters which may be operated by a single switch. The appropriate combination is made available at broadcast times by the built-in 7 day digital clock, or either combination may be manually selected at any time.

All of the control functions are handled by a 2650 microprocessor which is located in the engineering console. All audio switching is done by CMOS analog switches under the control of the microprocessor, eliminating the need for relays. A modern front-loading cassette deck is located in the engineering booth to provide broadcast tape segments.

The system has been designed to simplify as much as possible the task of

conducting broadcasts, while providing sufficient flexibility to cope with other activities such as WICEN activations. In all the station has some 15 transmitters, including three beacons and two repeaters, and at the time of writing broadcasts are conducted on 9 different frequencies (see the WIA Directory for a list of frequencies).

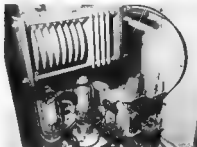


Plate tuning capacitor and finals of the 80m J54800.

On HF there are the three J54800 AM transmitters. Two of these are operational on 80 and 40 metres, while the third is being prepared for service on 160 metres. Each produces 500W output from a pair of 810's. There are also two Collins 32RS-1 SSB transceivers which are used for 80 and 40 metre callbacks and as a backup for the AM transmitters. These transceivers run 100W PEP on up to four crystal controlled channels in the range 1.5-15 MHz.

On 10 metres a converted CB base station coupled to a 60W solid state linear amplifier is used. A combined 6 and 2 metre SSB transceiver, designed and built by the Dural staff, provides 10W PEP on these bands. These three transceivers share their antennas with the three beacons, with antenna switching automatically occurring at broadcast times. The beacons are all solid state and run about 25W on 28,262 MHz, 52,420 MHz and 144,420 MHz. A 70 cm beacon, to operate on 432,420 MHz, is awaiting licensing.

An AWA BS50 is used for broadcasts on 6 metres FM. This is an all valve 50W transceiver, and will shortly be replaced by a solid state unit which is presently under construction. On 2 metres FM there is the link transmitter on 145.6 MHz which provides a direct link into three surrounding repeaters.

REPEATERS ALSO

The lineup is completed by the station's two repeaters, VK2RWI and VK2RUS. The 2 metre repeater on channel 7000 is fully solid state and runs about 35W through a six-cavity duplexer to a bank of four folded dipoles at a height of about 30 metres above ground. The repeater's control logic consists of a 2650 microprocessor which provides the various timing functions, identification, off-frequency and weak signal indications, an anti-button-pusher func-

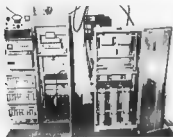
VK2 MINI BULLETIN

Susan Brown VK2BSB

42 Waratah Cres., Macquarie Fields, N.S.W. 2584

tion as well as extensive remote metering and control facilities. This repeater is completely home-brew and replaced the valve system which was in service prior to 1978.

The 70 cm repeater on channel 8525 is also fully solid state and runs 10W from an AWA 15M transmitter and a Philips Westminster receiver. A four-cavity duplexer feeds a Scalar collinear antenna mounted on the top of the main tower at a height of about 32 metres. At present discreet logic is used for the control unit, but it is intended to replace this with a microprocessor based system similar to the 2 metre repeater.



Right: 2m repeater; Centre: 70 cm repeater; and Left (top to bottom): deviation meter, cavity filter, 12V distribution panel, 2m transmitter and three 70 cm transceivers.

The reconstruction which has taken place over the past four years is due solely to the efforts of the Dural Committee, which at present is made up of Roger VK2ZIG, Jeff VK2BY, Charlie VK2BXX, David VK2AYO, Phil VK2BOC and Colin VK2DYM. John VK2ZPC and Doug VK2ZYM (now VK5ZYM) have also served on the Committee.

The Dural site is also used for various social functions, the largest being the annual fireworks display with an attendance last year of over 400 people. Each October the station hosts several groups of scouts for the JOTA, and the bush setting is ideal for this. Visitors are welcome to look over the station on Sunday mornings and assistance is always required at the regular working bees.



RF section of 80m J54800.

Although concentraion has been on the recent history of the station, mention must be made of the many people who have contributed over the past 25 years, both at Dural and Crows Nest, and whose efforts behind the scenes have made possible this service to members.

AGM REPORT

A total of 78 people attended the 1982 Annual General Meeting of the NSW Division held on Saturday, 27th March at Crows Nest. The Chairman, Divisional President Athol Tilley VK2BAD, opened the meeting at 10.03 by welcoming all present. After accepting apologies, the meeting then received and adopted the 1981 AGM minutes, the President's Report and the 1981 Annual Accounts as circulated.



Divisional President Athol Tilley VK2BAD presenting silver tea service to Bill Hall VK2XT.

Divisional President Athol Tilley presented an inscribed silver tea service to Bill Hall VK2XT in recognition of Bill's ten years' service to the Division as QSL Officer. The meeting thanked Bill with sustained acclamation for his consistent voluntary work on behalf of all NSW amateurs, whether members of the Division or not.



Howard Freeman VK2NL receiving his Merit Certificate.

The President then made presentations of Merit Certificates to Howard Freeman VK2NL, retiring State Supervisor of WICEN, Bill Hayes VK2AJL, Divisional Library Officer, and Mark Salmon VK2DI, retiring Slow Morse Supervisor. The meeting thanked all three by acclamation.



Bill Hayes VK2AJL receiving his Merit Certificate.

Returning Officer Roger Hanley VK2ZIG then announced that as only seven valid nominations for Council had been received up to 26th February, there was no ballot and the new Council for 1982/83 is Susan Brown VK2BSB, Peter Jeremy VK2PJ, Gordon McDonald VK2ZAB, Tim Mills VK2ZTM, Jeff Pages VK2BY, Stephen Pail VK2PS and Athol Tilley VK2BAD.

Keith Howard VK2AKX moved a vote of thanks to the retiring members of Council, Henry Lundell VK2ZHE and David Thompson VK2BDT. The meeting carried the vote by acclamation.

The meeting then proceeded to the notices of motion, as advised on the agenda paper. Motion 8a recommending that Council purchase suitable commercial property in the Parramatta or surrounding area as future Divisional headquarters and at the same time sell the Aitchison Street property was carried. Motion 8b that Article 96 be changed so that the quorum for a Conference of Clubs be no less than 25% of the total clubs affiliated was carried. This motion will now proceed to the Attorney General's Department for approval, and the change to the Articles does not come into effect until this approval is given. Motion 8c was not proceeded with as the notice given was incorrect in specifying a change to Article 96 instead of 83.

Motion 8d recommending a change to the meeting time of the AGM to a time outside normal commercial hours was carried. Motion 8e recommending that the Division adopt as policy that upper sideband be used on 160, 80 and 40 metres was lost. Motion 8f recommending that Council charge for circulation of Council minutes to Affiliated Clubs was lost.

Roger Hanley VK2ZIG was re-elected unopposed as the Division's Returning Officer for 1982/83. A motion expressing a vote of thanks to Council and the Dural

operators was moved by Harold Wright VK2AWH and carried by acclamation. Before concluding the meeting, the Chairmen complimented members for the high standard of debate. He then declared the meeting closed at 12.23 p.m.

COUNCIL REPORT

At the March meeting, letters from Telecom and DOC Sydney were received advising that the interference problem being experienced by VK2WI on channel 7000 and several other repeaters was being investigated. Since the meeting, Broadcast Officer Jeff Pages VK2BYY has been advised by Telecom and DOC that the transmitter causing the interference has been repaired. Council would like to thank all those who responded to our requests for reports on the interference.

Council received a reply to our request for curtailment of daytime test pattern transmissions on TV Channel 0. DOC Melbourne have advised (eight months after our initial letter to DOC), that "the hours of test transmissions have been set to assist service organisations with their installation of suitable receiving aeriels. Although, as you have noted, the use of Channel 0 is temporary, potential viewers require a reasonable lead-time in which to equip for this, as yet relatively unfamiliar UHF TV transmission. You may be assured that the Department is actively considering options to improve the present Channel 28 coverage throughout the Sydney metropolitan area in anticipation of the SBS more widely promoting this service."

HOME BREW COMPETITION

This year, for the first time, the NSW Division is conducting a homebrew competition as recommended by a recent Conference of Clubs. Henry Lundell VK2ZHE drafted rules and scoring tables for the competition last year, and copies of these rules are available from Divisional Office. All Affiliated Clubs also have a copy of the rules.

Entries for the competition must be received at Divisional Office by November 31st each year. Local judges, usually from a club, will judge entries and scoring and documentation will be sent to Divisional Office. If you are interested in entering the competition, contact your local club or obtain a copy of the rules from Divisional Office.

One club which is conducting a local competition is Oxley Region Amateur Radio Club at Port Macquarie. Their competition is in two sections, both to be decided at the Oxley RARC's Field Day over the Queen's Birthday weekend in June. Thanks to Lewis VK2LS for providing the following information

(1) HOME BREW RECEIVER CONTEST

Entries are invited from ALL AMATEURS for a Home Brew Receiver designed for use on any amateur band or bands, constructed from parts reasonably and or commonly available. To decide the winner, a panel of 3 judges will apply a point score system allotted to the following factors:

- (a) PERFORMANCE
- (b) SIMPLICITY
- (c) COST

Judges decision shall be final.

Final judging, and the winner, will be announced at the Field Day on Sunday, 13th June. All entries will close at 2 p.m. sharp on Saturday, 12th June. Trio Kenwood have kindly donated a "Grid Dip Meter as the Kenwood Trophy for this contest.

(2) HOME BREW ANTENNA CONSTRUCTION AND ERECTION CONTEST

This contest will be held at the Annual Field Days at Port Macquarie over the Queen's Birthday weekend also. Details are as follow:

- (a) Antenna must be multi-band, capable of working on all of 80 - 40 - 20 - 15 and 10 metre bands.
- (b) No adjustment of any tuning device is permitted.
- (c) SWR must be 2:1 or better on all bands mentioned.
- (d) Entrant must be one individual person only.
- (e) All masting and necessary hardware to be supplied by entrant.
- (f) Existing trees and local structures in or outside contest area must not be used.
- (g) Contest erection times will be 10 a.m. to 2 p.m. on Sunday, 13th June.
- (h) Judges decision will be final.

These are two unusual competitions which are to be held at the Oxley Region Amateur Radio Club's field days on the Queen's Birthday weekend in June, at Port Macquarie.

TOWER FUND

Many thanks for the following recent donations to the Division's tower fund from L. Marsh VK2DWH \$5, L. Peasley VK2BLP \$10 and the Qld. Division \$27.

Details of two clubs affiliated with the NSW Division:

Armidale and District Amateur Radio Club
Net: Last Wednesday on 28.495 MHz at 7.30 p.m.

Meetings: Last Wednesdays at Organic Chemistry Building, U.N.E.

President: M. McGregor VK2NXU; Vice-President: K. Ward VK2YFW/NOI; Secretary: D. Boundy VK2BAE; Other Committee: J. Rogers VK2ACW, N. Johnson VK2NWJ, K. Merideth VK2VGB, F. Hansen VK2IZ, R. Hansen VK2VUX, H. van der Drift VK2VCC, T. Wolfenden VK2-AZA.

Goulburn Amateur Radio Society

C/- PO Box 350, Goulburn, 2580.

Net: Sundays at 2100 on 3615 kHz using VK2BTZ.

Meetings and classes: Second Wednesdays at Goulburn Police Boys' Club, Avoca Street, Goulburn.

President: Henry VK2BUT, Vice-President: David VK2NAW; Secretary: David VK2-BDT; Other Committee: Monty VK2JQ, Barry VK2DBA, Jim VK2BO, Scott VK2-VUT.

COMING EVENTS

23rd May, Sunday 8th Conference of Clubs at Revesby Workers' Club, commencing 10 a.m., 26 Brett Street, Revesby. Talk in on Channel 7000 and 28.47 MHz. Smorgasbord lunch available from 12 to 2.30 p.m.

5th June, Saturday Dural Fireworks Night. Only 350 tickets to be sold PRIOR to the night. Listen to broadcasts for further details of the day's events, as this is the 25th Anniversary of the opening of Dural.

VKG REPEATER



Photo shows the repeater site.

During late 1981 the Tic Hill Repeater Group ran a raffle to help bolster funds as money was fast running out.

On the 1st February 1982 the President, Trevor VK6MS, drew the four winners. They were:

1st Prize, an IC22S, kindly donated by Vicom and won by Tony, now VK6ZH, on Willis Island.

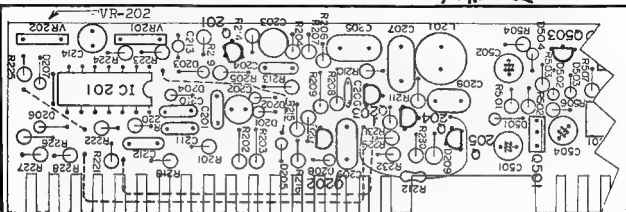
2nd Prize, a voucher for \$150.00 from Willis Trading, went to Graeme VK8ZGK.

3rd Prize, a 5/8th 2m whip and fittings from Scalar, went to Cyril VK6CR.

4th Prize, won by Ruthanna WB3CQN, was three years membership of the WA Repeater Group.



Trevor VK6MS on right, drawing the winners from a lottery number system arranged by Alyn VK6ZGA, on left under the careful eye of Douglas VK6ZMG recording all for the Sunday morning broadcast.



The fault is caused by a drift of the Audio Squelch/Centre Detection IC (IC-201, uPC 324C) and misalignment of the centre control VR202.

Re-centring VR202 should rectify the problem.

Part of the control PCB showing the position of VR202 running parallel to the back of the set.

This information has been kindly supplied by GFS Electronic Imports, 15 McKean Road, Mitcham 3132.

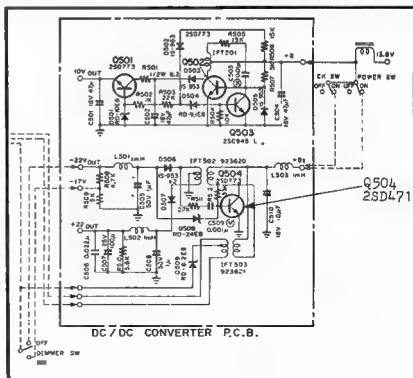
A number of late model 200s are known to suffer from a falling digital readout caused by loss of -22 volt supply from the DC-DC converter PCB.

The problem appears to be that the oscillator transistor Q504 (usually a 2SD471) has failed and frequently causing the IFT502 to develop a short circuit.

In most cases when this fault has occurred, it has been found that the Collector-Base resistor, R512, has not been the 33k ohm resistor that it was meant to be but a 22k instead. This lower value resistance provides too much forward bias to Q504 which results in overheating and in some instances, thermal runaway and eventual destruction of the transistor.

It is therefore recommended to check the R512 and if a 22k resistor is found, to replace it with a 33k.

This information has been kindly supplied by GFS Electronic Imports, 15 MeeKon Road, Mitcham 3132.



VK4 WIA NOTES

K. B. Pounsett VK4QY
33 Lasseter Street, Kedron, Qld. 4031

ANNUAL GENERAL MEETING

Nine of the available twelve positions on Council were filled at the recent AGM. Under the articles, the Council is empowered to fill the remaining vacancies and will do so at the earliest opportunity. For greater detail on the events at the meeting, see your copy of March QTC.

The new Council members are John Aarsse VK4QA, Ken Ayers VK4KD, Harold Bremmerman VK4HB, Jack Gayton VK4AGY, Guy Minter VK4ZXZ, Ross Mutzelburg VK4KRM, Fred Saunders VK4AFJ, Claude Singleton VK4UX and Rod Taylor VK4NBD/YRT. At its first meeting the Council will elect the 1982 office bearers as well as filling other non-Council positions. The Federal Councillor is still David Laurie VK4DT with Guy VK4ZXZ as the Alternate.

1982 RADIO CLUB WORKSHOP

This year's Workshop is almost upon us. Many club and federal motions have been circulated with preliminary material on the policy making discussions. Please, make sure that your club delegate is well briefed—otherwise he cannot effectively present your views. It is still not too late to "bend his ear".

FEDERAL CONVENTION

As given above, our Federal Convention delegates this year are David VK4DT and Guy VK4ZXZ. Whilst they will receive a lot of briefing at the Workshop and again by Council, they are always available for input from individual members. Read through the Federal Convention motions as published and circulated and then let your Councilors know your views and thoughts.

EDUCATION

The updated education study kits are available from the Divisional bookshop and have proved very popular. It is proposed that content be reviewed regularly and appropriate changes made. For example, work is progressing on the preparation of a brief history of "Amateur Radio in Queensland" for insertion in the kits. Let Council know if you can see ways of improving the effectiveness of these kits or other services in general.

WORKSHOP

At the Queensland Division's Radio Club Workshop held over the weekend of April 17 and 18, at Griffith University, Brisbane, a well prepared motion by the Radio Amateurs' Group was presented. It dealt with changes to the rules of the John Moyle Memorial Field Day Contest.

The biggest change proposed was when. The RAG suggest a date a little later or alternatively much later in the year. Early

April is the suggested time but if this is unsuitable, late October or early November.

WHY THE CHANGE? The present timing puts the contest right in the middle of our wet season (and that of VK8). More VK4 stations have been rained on for more years than there have been dry field days. It is no fun erecting antennas and keeping gear dry in a torrential tropical downpour. For those without the experience, here in VK4, we can get more rain in one weekend than Adelaide gets in a whole year.

The RAG would not mind having the field day contest in mid-winter (the Sunshine State at its best) but recognise the problems of Southerners with very cold wet weather at that time. The RAG feels that early April would be just right for everyone.

WORKED ALL QUEENSLAND "VK4"

AWARD

This award is divided into two sections—Worked All Cities and Towns, and Worked All Shires.

There are 21 incorporated Cities and Towns and 113 Shires. To obtain the award, you must contact at least 15 cities or towns, or 51 Shires. Stickers are available for great achievement.

If you are interested in obtaining further details, send a stamped addressed envelope to the Secretary, GPO Box 636, Brisbane, Qld. 4001, for the rules and check list.

A tip for those who are hunting cities, towns and shires, the Queensland net is held each Thursday evening on 3605 kHz at 0930 UTC. Lots of towns and shires are represented, some quite rare. You will be made most welcome.

CALLING ALL EX-VK4's

Peter Brown VK4PJ is the Queensland Division historian. Peter is busy collecting historical data about amateur radio in Queensland prior to World War II. He has already collected a lot of relics, books, log books, QSL cards, and notes and tapes of people's memories.

If you were an amateur or SWL prior to 1939, Peter would like to hear from you. Every little fact helps, you may think that you do not have anything to contribute. Memories of events, names, call signs, minutes of meetings, early DX, no matter how fragmentary, you could fill a gap in what he has now.

Peter's job is somewhat like that of the chief of MI5, sifting, correlating, and make a whole out of seemingly unrelated facts.

You may contact Peter Brown in care of the Queensland Division, GPO Box 638, Brisbane, 4001.

Welcome to Dad, the new correspondent for VK4.

BUYING ON BULLISH FEARS?

HAMADS
MAKE IT HAPPEN FAST

Learn Your Q Signals

By N6DQC Noel Novinson
from Santa Barbara ARC KEYKLIX

The following is a list of little used Q-Signals and abbreviations. Their meanings often need to be expressed with brevity and clearness in our amateur radio work, so learning and using them should be an important order of business for us all.

QCK—Don't bother trying to listen on the other sideband; I am a duck.

QIK—Please stop transmitting at this time, you're boring.

QOL—Your signal is so strong it just blew out my front end and I'll be seeing you in court.

QFF—Please send louder; there's a French-fried potato in my ear.

QOD—Sorry about my sloppy sending, but I'm high on drugs at this time.

QHT—Please stand by, as my antenna has just fallen into my bathtub.

QME—Sorry about taking so long to come back but I had to go out and milk the elk.

QDR—I have traffic I need relayed to Stonebridge. Do you speak Druid?

QHI—Please tell funnier stories at this time.

QHH—Please increase your power and/or talk louder as it is hard to hear you over the tinkling ice cubes and ripping clothes.

QBL—Sorry, I can't QSL, but I'm not legally licensed.

QHIIHHH—I think my keyer's stuck.

QOT—I notice you are experiencing difficulty tuning up; please consider an easier task like watching television or counting your toes.

QCT—Your RST may not be much, but you're coming in fine on Channel 2.

from "ARNS Bulletin" Sept '81



QSP

JOTA

The Jamboree on the Air in October this year will be extra special '82 is the 25th JOTA and this year also marks the 75th year of Scouting and the 125th year of the birth of the founder, Lord Baden Powell. The 12th Australian Jamboree is to be held at Collingwood Park in Queensland on the December/January 1982/1983 period. By the way 397 amateur stations were involved in JOTA 1981 involving 837 operators and some 17,000 Scouts and Guides.

AMSAT AUSTRALIA

BOB ARNOLD VK3ZBB
41 Grammar Street, Sraithmore 3041

CO-ORDINATOR:
CHAS ROBINSON VK3ACR

CORRESPONDENTS:
VK2RX, VK3KF, VK3KW, VK3YQX,
VK4PJ, VK5HI, VK5AGR, VK7PF.

INFORMATION NETS
AMSAT AUSTRALIA:
Contro, VK5ACR
1000Z Sunday and Wednesday. 3680
kHz winter. 7.064 MHz summer.

AMSAT PACIFIC:
Contro, JAIANG
1100Z Sunday 14.305 MHz.

AMSAT SW - PACIFIC:
Contro W8CG
2200Z Saturday 28.880 MHz.

Due to the growing interest in amateur satellites the AMSAT Australia net will now be held twice per week at least until Phase III B is operational.

CEL ESTIMATIONS
Amsat Oscar 8 and RS3 to 8 inclusive continue to work satisfactorily in accordance with data previously published. No alterations to my earlier parameters have been received so I assume the record is correct. BUT watch out for May Day or other days of celebration in the USSR when something could happen, particularly to RS3 and 4.

If you study the number of Russian historical events and add to them the space events recorded in Moscow's wonderful Space Museum it would almost be possible to have a further event on any day of the year!

Snippets of information emanating from various Russian sources give confidence to assumptions that more experiments are aboard some of the RS 3 to 8 satellites than are presently operative. Is something likely to turn up on 70 cm? Will either Mode B or Mode J be used or will an original mix of communications be used? The only way to know is listen intently.

UOSAT 9 is still not fully operational on all experiments (as at 21 March) and I can only repeat earlier messages — please be patient!

DELAYS
Unfortunately the launch of our Phase III B satellite has been delayed and will now be early October, 1982. Although a disappointment, we would prefer to wait and see a perfect launch rather than run the risk of losing our most valuable hardware.

COMPUTER PROGRAMMES
Some months ago I intimated that a programme written in Basic by Tom Clark W3IWI to determine an orbit path from

Two Line Orbital Parameters would be published as part of these notes.

This reprint was then deferred whilst details of UOSAT were published.

In the meantime no great number of enquiries for the W3IWI programme were received and so it has been decided to again defer publication.

However, for those who may be interested, a photo copy can be obtained by sending an A4 size SASE to the Editor of AR, PO Box 150, Torak, Vic. 3142.

CONTACTS
As we go to press we hear unconfirmed reports that contacts may have been made via Mode A of Amsat Oscar 7. With eight satellites in orbit capable of operating Mode A it is not easy to differentiate between them but with appropriate time checks it would appear that AO7 is possibly still alive — here's hoping!

ENTRY NEWS
Last minute news from Ron G3AAJ, Secretary of AMSAT-UK, indicates that the Camera aboard UO9 has been opened and found to be in good shape. No programme has been prepared for the regular transmission of pictures and we must await this news and also the availability of PC Boards for the decoding and display of the UO9 pictures.

INFORMATION ON Phase III Countdown

The concept of the Phase III Countdown newsletter originated prior to the planned launch of Phase IIIA, 23 May 80. Pat Gowen G3IOR, AMSAT Director and European Regional Co-ordinator, issued the Phase III Countdown letter to members of the IARU to keep them informed on the progress of activities leading to the actual launch. With the advent of ASR we have a natural vehicle for the Countdown idea. Thus, last summer AMSAT decided to continue the Phase III Countdown concept in the new package, ASR. This is the first in the series which by launch day will present as much material as possible that will be of use to the builder of Phase III-compatible stations, those who would become users of the Phase III resources and those who would write about Phase III for other groups of interested amateurs and non-hams.

We begin the series with an overview of the various systems and considerations that will affect Phase III B operations and

especially how the user will see the new spacecraft. In this overview we will speak in generalities. Specifics and details will follow in subsequent instalments.

Launch day is scheduled for 6 July 82. The launch vehicle will be a three stage rocket of the European Space Agency (ESA) called Ariane. There have been three successful launchers of Ariane and one failure. The second test launch exploded on launch 23 May 80 and destroyed the Phase III A bird. The fifth launch of Ariane and the first operational launch, L5, is scheduled for early Spring. AMSAT's Phase III B spacecraft is manifested for L6 due to be launched 6 July 82. The ESA launch facility is located at Kourou, French Guiana, South America. The site was chosen so as to be close to the Equator to increase the weight that could be placed into geosynchronous orbit.

The Phase III B spacecraft will weigh nearly 150 kg (385 lbs.) and will be in the three pointed star configuration similar to Phase III A. This configuration was chosen to maximize surface area for solar cells to improve the electric power budget. Much of the hardware will be the same as was developed for Phase III A but with some significant enhancements. Phase III B will carry, in addition to the Mode B transponder with uplink at 70 cm and downlink at 2 metres, an L-transponder called for the present, Mode X. Mode X will have an uplink at 23 cm and a downlink at 70 cm. The antennas for the transponders will be circularly polarized with substantial gain. Required uplink power for Mode B is estimated (pending systems calibration) to be about 500 to 1000 watts ERP and on Mode X about 1-2 kw ERP is estimated.

The orbit for Phase III B will be very similar to that planned for Phase III A except for some minor details. The orbit will be a high elliptical orbit known as a Molniya orbit. It is hoped that the inclination will reach 60 degrees or so with a 10.5 hour period. The apogee will be about 40,000 km with the final perigee around 1500 km. The ground track resulting will take some getting used to and present satellite locator systems will prove useless. Computer generated plots and specially designed manual locator systems will be required. The coverage of the satellite will be great allowing nearly hemispheric coverage at times. The satellite will reach its final orbit only after a manoeuvre following separation from the launch canister called the SYLDA. The energy to perform the manoeuvre will be provided by a liquid fuelled rocket engine (kick motor)

fuelled by a mixture of UMDH and nitrogen tetroxide. The manoeuvre burn will last but a few seconds but will place the satellite in a long-lived orbit better able to serve the amateur community.

The passband of the Mode X transponder will be 800 kHz wide and that of the Mode B transponder will be 150 kHz wide. A bandplan for each mode is presently being devised. Public discussion of the proposed bandplan will be promoted in this column as well as elsewhere. Current planning envisons partitioning the passbands into three broad zones as before with one-third each for CW, SSB and mixed CW/SSB. As with Phase IIIA, there is consideration being given to the inclusion of the special service channels (SSCs) for the communication of special activities such as packet radio, bulletins, etc. There are 4 SSCs being considered for Phase III B rather than the 6 envisioned for Phase IIIA.

Ground command stations for Phase III B will be located in the U.S., New Zealand and Germany at least. Others may be added as mission requirements demand. Telemetry from the satellite will be bi-phase DPSK at 400 bps.

The ARRL has ruled that the satellite endorsement to the DXCC award may not be obtained for high orbit satellites such as Phase III B because, in essence, it will be too easy.

The user community on Mode B is expected to grow very quickly. Emphasis on communications discipline will be stressed. When the Mode B transponder begins to become overloaded, the operational plan is to begin a gradual increase in the proportion of time the Mode X transponder will be on compared to that time when the Mode B will be on. Both transponders will not be simultaneously operated. The hope is that the congestion expected on Mode B will be relieved by Mode X. There, with 800 kHz and more of a technical challenge, the congestion will likely not occur for years if at all.

Phase III B will cost several hundred thousand dollars once all the bills are in and the volunteer labour value is factored in. A comparable commercial project would cost in the millions. AMSAT's paid staff of engineers and scientists number less than a dozen. Volunteers pick up the slack and number in the dozens. Direct support for Phase III in terms of flight hardware and money to build the spacecraft has come from many national radio societies and from hundreds of individuals around the world.

On board the Phase III B spacecraft will be an extremely sophisticated computer called the Integrated Housekeeping Unit (IHU). As the name implies, the IHU will supervise the performance of such critical functions as timing precisely the firing of the kick motor and such routine tasks as telemetry formatting. The IHU will control the attitude of the spacecraft by first determining the orientation and spin rate by looking for the sun and earth through special optical devices (remarkably aptly named sun-sensor and earth-sensor). At

precisely timed intervals the IHU will energize electromagnets in the "arms" of the spacecraft. The interaction of the geomagnetic field and the spacecraft's field results in a torque (twisting force) which will orient the spacecraft in the desired direction. Periodically the IHU will check to see if the alignment needs refining and act accordingly.

Phase III B should continue operation well into the second half of this decade. To reach this reliability goal special design features have been incorporated such as radiation shielding to protect the integrated circuits from radiation damage (to extend their expected life). The thermal design of the spacecraft is the result of a complex computer model developed by a professional spacecraft designer. All previous known failures of amateur spacecraft have occurred due to battery failure. Phase III B will be the first to carry a back-up spare battery to extend the spacecraft life beyond that realizable with a single battery. This back-up battery concept is used in commercial and military satellites to achieve the same objective. The spacecraft is built of space-qualified hardware subject to the most rigorous of testing and burn-in. The entire spacecraft will be tested at the Goddard Space Flight Center in a thermal-vacuum chamber to evaluate its performance in a simulated space environment. The spacecraft will be evaluated for balance under spin conditions and vibrated to look for mechanical resonances.

When placed in orbit this summer, Phase III B will likely become one of the most significant influences to affect amateur radio ever. The impact on the course of events is likely to be so great as to be essentially unpredictable beyond, say, a few years. What can be stated with relative certainty, however, is that amateur radio will never again be the same!

In this first episode of Phase III Countdown we have looked at some of the factors which will make the Phase III B the splendid achievement it bodes to be. We have seen how amateurs around the world have united in a grand dream of technological innovation stirring the imagination of operator and technician alike. We have looked at some of the physical characteristics of the bird and viewed some of their performance values. And we have hinted at some of the organizational challenges that lie ahead in keeping under rein the diverse, powerful forces which, on the one hand, could work for immense benefit, on the other, to the grievous detriment of the programme for years to come. In future episodes of Phase III countdown we will examine in somewhat greater detail the topics we sketched out here in this first installment. Stay tuned!

Reproduced from AMSAT Satellite Report ■

* * * *

SAY IT FAST

A skunk sat on a stump. The stump think the skunk stunk, and the skunk think the stump stunk!

from "ARRL Bulletin", Sept. '81

For WIA Members only

THE WIA BOOK

YES, IT IS READY!!

This book attempts to bring together in one place a range of historical and other material including the best in VHF.

Coverage is given to a chronological table of events interesting to amateurs up to 1925, historical articles on Morse keys, emergencies, QSLs, call signs, satellites, the ionosphere and other items.

There are illustrations of QSL cards of 1926/28, a 1914 licence as well as other photographs.

This is Volume 1 of a Series you must not miss.

Stocks will be available from **YOUR DIVISION** or direct from

MAGPUBS

P.O. BOX 150,
TOORAK, VIC. 3142

Price will be
\$3.50 plus postage.

SPOTLIGHT

ON SWling

Robin L. Harwood VK7RH
5 Heler Street, Launceston, Tas. 7250

I have received an interesting suggestion from Mr. J. Bush (L20142), of Dulwich Hill, N.S.W. He would like to see the inclusion of tables of frequencies and times, together with their power and locations. This, he envisages, would be of benefit to some SWLs in their hobby, and could be updated every six months or so.

Personally, I do not have the time to compile such an extensive source of information. Nor is it practicable to include such, as tables and information of this nature are already available on a regular basis from both the Southern Cross DX Club and the Australian Radio DX Club. As this column is prepared six weeks before publication, any information can become easily outdated, when this edition comes out. Also I think it is important that we not duplicate what is already obtainable from other sources. However, that does not mean I will be excluding any information, if it becomes available, that is of interest to SWLs. I thank Mr. Bush for his suggestions and ideas. If you have any comments about this column and how it could be improved, please drop me a line to the address at the head of this column.

While I think of it, the deadline for inclusion of any information for this column is the 21st of the month.

SHORTWAVE NEWS

Now for shortwave news. Radio Netherlands popular Communications' magazine, "Media Network," will be having a series of six programmes on famous moments in shortwave radio. It will include many historic off-air recordings of interesting and unusual broadcasts, and should be well worth listening to. Times for these programmes will be 0750 and 0850 UTC on Thursdays on 9770 and 9715 kHz respectively. Incidentally, Jonathon Marks, the producer of Media Network, would like to hear from anyone who has tapes or recordings of significant events on shortwave for possible inclusion in this series. You can contact him at Radio Netherlands, P.O. Box 1200 JG, Hilversum, Holland. Keep reading this column for more news from Media Network.

SOVIETS

Have you wondered why Soviet HF broadcasts are so strong lately? They do seem to pack consistently loud signals into this region much stronger than other broadcasters. It was recently mentioned in several overseas bulletins that, although they have several Megawatts, they use larger than normal antenna bays with 64 elements. These bays have 8 stacks of elements stacked one above another with

a similar configuration side by side. This is roughly four times the size of standard curtain arrays of 4 stacks and 4 bays, giving it a gain of 10 db over the standard array. They appear to be utilizing backscatter techniques so that the signals can be adjusted to take account of ionospheric conditions whilst the programme is being broadcast, resulting in a steady signal.

Added to this, they use audio processing or compression. That is, the softer portions of the programme material are increased in amplitude while the louder sections are decreased accordingly. These two factors have certainly increased Moscow's signal strength, compared with most other broadcasters, mainly operating under financial stringencies. However, with the deteriorating international situation, we should see the larger organizations get stronger, while the middle and smaller outfits will get drowned out.

PRE-AMP

One useful addition I have made to my shack, has been an RF pre-amp, which certainly has been an aid in pulling out the weaker signals. Yet it also has the disadvantage of bringing up the ambient noise level. I find that it is mandatory with my unit, to use an Antenna Tuning Unit, to filter out the stronger signals from cross-modulating within my rig. I use it exclusively on my receiver, instead of the FT 707 transceiver, because I would be as likely calling up a reasonable signal, and forget the RF pre-amp is in circuit and forget it I suppose with the aid of a relay, this could be overcome, but I am satisfied to only use it with my FRG-7 receiver.

AFRICA

I have received a sample copy of a publication devoted to African broadcasters. Called QTH-AFRICA, this bulletin keeps those interested in what's happening on this continent, and is issued every 10 days. As well, they issue sheets of African External Service broadcasts quarterly, and a half-yearly summary of clandestine broadcasting in Africa. I would consider it an invaluable aid to those specialising in broadcasts from this area. The subscription price (airmail) for this area is £11 stg. per annum. Sample copies cost three IRC's. They can be ordered from Miki Vcelar, QTH-Africa, Box 28250, Pretoria-Sunnyside 0132, Republic of South Africa. Unfortunately, I seem to be in a dead spot to receive most African signals, with the possible exception of the South African External service, Radio RSA in Johannesburg, on 13 and 19 metres.

Talking of dead spots, the new American commercial broadcaster — WRNO in New Orleans, has not, as yet, been observed in Tasmania. I am sure that most have cited their schedule elsewhere, so I won't repeat it here. Yet if you look at the Great Circle Map and realize that they are beaming over the North Pole to North America and Europe, it is not surprising that I cannot hear them.

WEDNESDAY

The weekly ARDXC Net on Wednesday evenings has been suspended, according

to Rob VK3BVW. No reasons have been advanced, but possibly there were few stations checking in to make it a regular Net. I think an Amateur Net devoted to Shortwave Happenings is feasible and desirable. As different locations have propagation to other regions, the use of a Net can be useful in the exchange of ideas, information and loggings. I would welcome your ideas and comments on this idea of a Net, and would be prepared to assist as NCS, if necessary.

Well, that is all for this month. Until next time, the best of 73's and good DXing.



THE NORTH WEST RADIO SOCIETY

This Society originated in Port Hedland, but it now has affiliated Clubs throughout the Pilbara area of Western Australia.

There is a Club net at 1130 UTC, Sundays on 3.605 MHz, a bi-monthly newsletter is mailed to members and all visitors to the area are most welcome to join in.

PORT HEDLAND.

Club call VK6ANW 2m repeater channel 8 VK6RNW. Meetings: First Friday of month at clubrooms.

P.O. Box 283, Port Hedland, W.A. 6721.
Enquiries: John VK6AFA (081) 72 1022.
Mark VK6VW (081) 72 2513.

NEWMAN CHAPTER

Call sign VK6MN 2m repeater channel 6 (licence applied for).

P.O. Box 378, Newman, W.A. 6753.
Enquiries: Mal VK6NV (081) 75 1317
Lindsay VK6NO (081) 75 1579.

KARRATHA CHAPTER

2m repeater channel 4: VK6RWP (under construction).

Enquiries: Nigel VK6KHD (081) 85 1779.
John VK6ZOH (081) 85 1330.

WICKHAM AMATEUR RADIO CLUB

2m repeater channel 2 (licence applied for)

Enquiries: Gordon VK6NCN
(081) 67 1074
Pat VK6NHP

CALL BOOK

Up-dated information on Clubs is urgently required for the next Call Book, shortly to be printed.

Club Secretaries are requested to send along any additions or alterations NOW to:

WIA

BOX 150, TOORAK, VIC. 3142

WICEN



R. G. Henderson VK1RH
171 Kingsford Smith Drive, Melba, ACT 2615

This month I wish to make a few comments on amateur radio equipment and its use for WICEN purposes. I will deal with VHF and HF separately, so firstly VHF.

POWER SUPPLIES

WICEN operators should be able to operate their transceivers from a range of power sources using a variety of connectors. For vehicle batteries they will have the installed connectors and desirably a cigarette lighter plug, for external batteries cable leads and spring clips are desirable, whilst AC power supplies often call for cable plugs.

Some WICEN groups have standardized on the 2-pin T configuration plug/socket, however, these are bulky. Others use reversed in-line fuse holders in both leads to observe polarity and permit interchanging gear.

Whatever you choose, I believe the minimum should cover the vehicle installation, a cigarette lighter plug, an external lead acid battery and a mains DC power pack with spring or screw terminals.

ANTENNA CONNECTORS

These are easier to cover, as the most popular connectors are the 239/259 screw series and the BNC type. Adaptors exist to convert from one to the other so as long as you can connect to both you should be safe.

ANTENNAS

Carry the widest range of antennas you are able to, ranging from the quarter wave ground plane, five eighth whip, flexible J (made from slotted 300 ohm TV feeder) to a portable three element beam from your fox hunting collection. Also carry sufficient coaxial cable to remotely site that antenna.

MICROPHONES/HEADSETS

Microphone connectors differ from set type to type and from model to model. Standardization is possible but should not be essential if you have a spare microphone with you for your set in some working circumstances the local noise levels make it difficult to use the transceivers inbuilt speaker so an external head set, perhaps with boom microphone, is a useful investment. It's also useful to add a second external speaker jack that does not mute the internal speaker.

CHANNEL SELECTION

A numbered channel selection knob is of little use without a dummy-tape or similar aid identifying the available channels.

OTHER FACILITIES

VHF FM transceivers can be interconnected to provide squelch and also audio actuated

repeater systems. If you set up one of these please check it out fully before the activation. You cannot afford time to engineer it in a real emergency.

Looking now at HF transceivers most of the above thoughts are relevant but a few others also apply.

VERSATILITY

An HF transceiver will not operate long from batteries without either recharging or float charging them. It is useful to carry a long mains lead and a safe distribution board to allow you to plug into existing AC supplies; but if they are from engine driven alternators monitor the voltage to protect your gear.

HEADPHONES

Headphones become more important at HF because of the background atmospheric noise which is most distracting to non-communicators. Amateurs frequently fail to realize this point.

ANTENNAS AND ATU

At HF most field aeriels will be expedients so an ATU with VSWR meter is highly desirable to achieve maximum power transfer to the aerial system. A wire aerial, perhaps a G5RV, or several parallel dipoles resonant at WICEN frequencies together with a reel of light cord and throwing weights (in emergencies use a shifting spool!) are necessary parts of your kit. Also look to carrying light antenna pole sections that can be joined, erected and guyed with light nylon cord. A wire can also be strung down the pole as a vertical.

In summary, PLAN YOUR EQUIPMENT NEEDS AND PREPARE IT BEFOREHAND; perhaps it could all be kept in the one box in the shack ready to pick up complete when needed.



ALARA

AUSTRALIAN LADIES' AMATEUR RADIO ASSOCIATION

Margaret Loft VK3DML
28 Lawrence Street, Castlemaine 3450

Hello again to all, not much news this month as I am still waiting to hear of holidays, new calls, etc., from you.

NEW MEMBERS

Welcome to new members Elva VK4ANA/ZL1BIZ; Wendy VK4BSQ, and Martha KA7CRO. Wendy has sponsored Martha; this is a friendly way to foster new members and also it uses a results in a co-sponsorship in the sister club, YLRL CLARA or BYLARA.

At a field day of the VK3 north-east group I met up again with Ema YF of Les VK3AAG from Bens a. Ema is a long-time member of ALARA and is not enjoying the best of health just now. Do hope the tests were OK and you are on the mend. Best wishes from all your friends, ES and Les.

Thank you to Charlene VK1NEJ for the photo and note; it is lovely to have such a young YL on the bands. Look forward to talking to you on air one day soon. Charlene, and good luck with further studies.

This month's photo is of Joy VK7YL (1st licensed 1938) and Helene VK7HD taken at a "sewing circle" get-together at Ross. About 40 of the regulars turned up with OMs and YL's and it is hoped to repeat the day again later in the year. The net is held on 80 metres at 5 p.m. local time daily and it was good to put a face to voices we had listened to for years, Helene said.

Until next month 73/33/88.

FORWARD BIAS

(VK1 DIVISION)

Richard Jenkins VK1UE
88 Companion Crescent, Flynn, ACT 2615

MEETING PROGRAMME

The next three monthly meetings will be held on:

May 24
June 28
July 26

The meetings are held at the Griffin Centre, Civic ACT. Members gather at 7.30 p.m. for a chat-chat, collect QSL cards, etc. Visitors are always welcome to attend the meetings. Come along and make yourself known to the members.

BACK ISSUES OF AR

The VK1 Division has received a gift of Amateur Radio magazines covering the last 20 years. Members are sure to find them a most useful reference source. Our special thanks to Reg, the donor. If you want some help with a project that might have been featured in AR, then contact Gavan, our Property Officer.

73.



Joy VK7YL (left) and Helene VK7HD.



CONTESTS



Reg Dwyer VK1BR
P.O. Box 230, Jamison 2614

CONTEST CALENDAR

May
8-9 USSR CQ M CONTEST
8-9 WORLD TELECOM PHONE
15-16 WORLD TELECOM CW
CQ WW WPX CW
29-30 IBERO-AMERICAN CONTEST

June
12-13 ARRL VHF CONTEST
12-13 SOUTH AMERICA CW
19-20 ALL ASIAN PHONE

RULES AND EXCHANGES

CQ WW WPX CONTEST (CW)

Starts 0000 UTC 29th May
Ends 2400 UTC 30th May, 1982

CONTEST PERIOD: Only 30 hours of the 48 hour contest period permitted for single operator stations. The 18 hours of non-operation may be taken in up to 5 periods any time during contest, and must be indicated in logs. Multi-operator stations can operate for 48 hours.

BANDS: All bands, 1.8 to 28 MHz may be used.

TYPE OF COMPETITION: There are single-operator single and multi-band and multi-operator single-transmitter all-band categories. One transmitter and one band only permitted during the same 10 minute period. (QSRY to another band to work a multiplier during this time is forbidden.) There is also a multi-operator multi-transmitter category in which all equipment must be within 500 metres diameter of the property of the licensee's address.

EXCHANGE: R.S.T. report plus a progressive three-digit contact number starting at 001 for first contact continuing to four-digits if past 1000. Multi-transmitter stations use separate numbers for each band

CONTACTS: With stations in one's own continent count two points on 14, 21 and 28 MHz and four on the other bands. Contacts with other continents count three and six respectively. Stations in one's own country may be used for multiplier only. The multiplier is the total number of different prefixes worked. A prefix is counted only once during entire contest regardless of how many times it is worked.

LOGS: Should indicate time (UTC), date, station worked, numbers sent and received, if new prefix and points claimed. A prefix check list must be included.

ENTRIES: Must be posted no later than July 10th, 1982, to: CQ Magazine, WPX Contest, 76N Broadway, Hicksville, NY, 11801, USA. Please mark envelope "CW".

IBERO-AMERICAN CONTEST

(A CONTEST)

Sponsored by the Union de Radioaficionados

nados Espanoles (URE), Granollers and Mollet del Valles Delegations.

Phone only 29-30 May 1982 (last full weekend of May each year) from 2000Z Sunday. All bands 160-10m. A station and multiplier to be worked once per band. Exchange RS serial number.

FINAL SCORE: QSO's x multiplier. Mono operator, all bands only allowed. Award for more than 50 QSO's.

Logs to Box 262, Granollers, Spain, or Box 62, Mollet del Valles, Spain, mail by 15th July.

Ibero-American countries list: CE, CO, CP, CR, CT, C8, CX, C31, DU, EA, HC, HI, HK, HP, KP4, LU, OA, PY, TG, TI, XE, YN, YV, ZP, 3C and their DXCC dependencies.

AUSTRALIAN RESULTS OF 1981

ALL ASIA DX CONTEST

Call	Points	Call	Points
VK6IR*	80	VK2XT*	34026
VK6NTK*	35511	VK2PFO	18720
VK3BMA	16218	VK5NMQ	6937
VK6FS*	121940	VK6JS*	29700

The * denotes a certificate winner. My congratulations to all entrants.

SOUTH EAST ASIA NET CONVENTION

On 15th and 16th August 1981, the South East Asia Net held the Seant DX Contest. The results of the contest are available from me for the cost of a self-addressed, stamped envelope.

The only VK mentioned in the results was VK4XA with a score of 219,827. Well done, OM.

RESULTS
A note from Eric Trebilcock on the 1981 BERU Contest mentions the VK winners: VK4XA won the gold medalion; VK2DBL won the bronze medalion; the team event was won by VK3, comprising of VK3XB, VK3AEW, VK3KF, VK3ZC; they were followed by VK2, VK7 and VK5 in that order.

THE VK NOVICE CONTEST TROPHY

The contest and trophy was won by VK3XB who had the highest aggregate score in the phone and the CW sections. The trophy is now in Ian's tender care. Congratulations, Ian.

CONTEST CHAMPION TROPHY 1982

This year's contest champion award will be determined from the following contest:

JOHN MOYLE NATIONAL FIELD DAY
REMEMBRANCE DAY CONTEST
NOVICE CONTEST
VK/ZL CONTEST.

These are the same contests as were set for 1981. I will print the rules and an

update for the contests in the June issue of AR, as space will now be rather short for this column.

JOHN MOYLE FIELD DAY RESULTS

COMMENT

There were quite a few logs received for the contest and it is quite evident that considerable effort was put into all the contest activities and into the quality of the submitted logs, for both of these, thank you.

SCORING

The scoring method seems to have been understood by most of the entrants, however some of you have mis-assessed your logs.

I have not re-scored these logs as the time involved to do this is prohibitive.

The correct method for scoring is as follows:

For a PORTABLE STATION contacting:

1. Home Station in the same call area (VK2/P to VK2/Home) 2
2. Home station in another call area (VK2/P to VK3 or JA Home) 6
3. Portable station in same call area (VK2/P to VK2/P) 10
4. Portable station in another area (VK2/P to VK4/P or WA/P) 15

These are an example only and this method can be applied to the rest of the scoring table.

RESULTS

Well, it seems that the VK4's were out in force again this year and their efforts certainly have paid off. Letters from some of the VK4 stations have mentioned that the weather conditions were quite favourable this year and the normal rainy weather was not experienced.

Quite outstanding efforts have been achieved by many other stations as the results show.

THE RESULTS

SECTION A — 24 hour

Call	Points	Call	Points
VK5QX*	1887	VK4XZ	526
VK5ABS	1151	VK3DHJ/4	413
VK5AZF	845	VK2DBA	385
VK5ZF	775	VK2UC	362

— 6 hour

VK3WP*	956	VK2AMV	225
VK2EOR	778	VK3XU	198
VK2BQS	591	VK2BQW	112
VK3ADW	547		

SECTION B — 24 hour. Nil entries.

— 6 hour

VK4VDG*	204	VK2JM	100
VK2BRC	150		

SECTION C — 24 hour

VK5VD*	1157		
— 6 hour			
VK3SP*	1274	VK1DL	652
VK2EL	1139	VK2ABZ	478

SECTION D — 24 hour

VK4WIZ*	19151	VK4WIP	3591
VK3ANR	10932	VK5BW	3145
VK4WJ	8355	VK5LZ	2851
VK5SR	5535	VK5BPA	1070
VK5ACE	3802	VK2AGH	455

— 6 hour

VK4WIN*	4422	VK2AZD	1360
VK4WIM	1794	VK2BOR	1053
VK3BYV	1759	VK3DBS	883
VK4WID	1709	VK2PJ	743

SECTION E — 24 hour

VK3APC*	10687	VK1WI	3790
VK3ATM	10571	VK4CAU	3502
VK3BML	8988	VK3AWS	3332
VK2DBK	7767	VK2BTZ	2073
VK3WQ	7003	VK8DA	1541
VK3KK	3809	VK3BHD	1429

— 6 hour

VK3SAS*	2708	VK3BSP	1147
VK3ER	2098	VK3AUJ	1102

SECTION F — 24 hour

VK3YIW*	1724	VK2KBN	1016
VK2YUP	1609	VK4XZ	484
VK1WI	1459		

— 6 hour

VK2DCL*	487	VK5ZTP	192
VK2BGF	387		

SECTION G — 24 hour

VK2ZMP*	770	VK2DYS	265
VK4AIX	755	VK3YRP	300
VK4KAU	330		

— 6 hour

VK2CBF*	810	VK1NEJ	295
VK2LS	517	VK3LC	220
VK1RH	425	VK2AUJ	80
VK7FD	315		

SECTION H — 24 hour

L30042*	500	VK4UG	180
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— 6 hour

L60038*	405		
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The asterisk (*) denotes a certificate winner.

CHECK LOG

VK3ALD

24 HOUR SECTION — CW

Call	10	15	20	40	60	100	Total	Claimed Total
VK4XA	106,140	73,984	52,540	25,320	280	—	1,234,472	1,342,649
VK2AQF	26,092	20,976	14,194	16,590	—	—	633,480	338,016
VK3MR	—	—	131,189	—	—	—	131,189	137,703
VK6IT	—	26,220	18,116	80	90	—	111,590	115,221
VK2DMW	12,278	240	25,440	80	60	—	101,467	7,086,240
VK7RY	2,498	4,056	10,530	450	350	80	79,548	12,432
VK2DIO	—	54,728	—	—	240	—	74,421	75,920
VK6JS	26,334	4,214	690	—	—	—	67,210	67,210
VK3MJ	—	80,370	—	—	—	—	60,270	56,986
VK6RT	—	—	—	56,210	—	—	55,210	55,460
VK6OZ	6,306	980	7,167	—	10	—	43,419	14,773
VK5ZF	2,997	14,448	—	—	40	—	32,835	33,300
VK6WB	17,180	—	—	125	—	—	20,230	20,230
VK3XB	—	CHECK	CHECK	—	—	—	CHECK	—
VK2APK	—	DISQUALIFIED	—	—	—	—	—	—

8 HOUR SECTION — CW

VK6AJ	98,682	6,824	3,807	—	—	—	215,718	210,086
VK3RJ	58,994	—	—	—	—	—	58,984	56,384
VK6YO	37,995	1,950	—	—	—	—	55,878	57,054

24 HOUR SECTION — CW

ZL2BR	78,413	87,892	110,979	—	12,040	—	846,487	892,738
ZL1AZV	38,290	24,188	2,856	106,275	—	800	200,151	289,410
ZL2RY	37,268	90,504	95,440	5,550	—	—	568,500	568,900
ZL2OM	2,925	115,730	10,990	16,908	2,090	—	478,772	503,880
ZL1HY	29,532	15,340	14,650	6,870	290	—	397,031	373,222
ZL2AGY	8,022	10,868	9,690	4,125	47,640	—	330,741	78,215
ZL1AIZ/B	—	—	—	181,272	—	—	181,272	184,000
ZL1AFW	28,631	16,472	6,240	125	—	—	157,242	53,811
ZL1AU	—	14,078	6,195	14,840	960	—	135,058	138,670
ZL3AGI	—	—	82,747	—	—	—	82,747	82,244
ZL4OP	7,900	2	6,184	—	—	—	28,870	12,385
ZL2BDC	CHECK	—	CHECK	—	—	—	—	—

8 HOUR SECTION — CW

ZL1BND	54,552	45,512	2,824	—	—	—	188,857	190,518
ZL2AH	—	28,800	—	—	—	—	28,800	55,112

SWL

L3-0042	1,512	816	2,944	240	360	—	27,284	30,300
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24 HOUR SECTION — SSB

VK3MB	231,795	95,778	863,883	7,890	—	—	2,807,554	2,807,554
VK2XT	140,388	128,978	8,861	3,045	180	1,800	1,088,038	1,127,860
VK2NDK	1,857,305	—	—	—	—	—	1,507,308	1,275,560
VK4LT	856,629	—	—	—	—	—	855,529	920,858
VK1RJ	79,395	—	136,587	—	—	—	499,948	224,924
VK6FS	171,072	780	31,086	—	—	—	418,320	418,320
VK4SF	238,302	—	—	—	—	—	239,502	252,384
VK6HJ	130,620	7,058	—	—	—	—	219,372	223,660
VK5ND	63,120	41,132	—	—	—	—	211,874	178,769
VK2CH	178,284	—	—	—	—	—	178,284	178,284
VK3SM	48,327	—	17,372	—	—	—	38,171	31,404
VK5AR	29,378	28,280	—	—	80	—	120,998	128,510
VK5AR	—	—	103,988	—	—	—	103,988	103,988
VK6JS	50,885	1,500	713	—	—	—	59,590	59,590
VK4VQ	11,178	3,562	—	46,810	1,700	—	87,640	48,590
VK3PLV	18,861	—	—	—	—	—	28,137	28,478
VK3AE	330	960	308	—	190	—	18,881	18,382
VK3ANP	4,680	—	—	—	—	—	6,844	5,775
VK3BEE	—	—	—	—	—	—	4,590	4,284
VK1LF	—	32	437	—	10	—	4,000	3,800
VK3XB	—	—	812	—	—	—	—	1,275
VK2APK	—	—	—	—	—	—	812	812
	—	—	DISQUALIFIED	—	—	—	CHECK	—

8 HOUR SECTION

VK6BW	—	152,928	—	—	—	—	152,928	147,618
VK6YO	5,174	52,182	5,551	—	—	—	148,452	151,182
VK5OU	—	7,178	38,703	30	20	—	87,638	137,538
VK3BMA	—	75,900	—	—	—	—	75,860	74,880
VK5HJ	68,088	—	—	—	—	—	68,096	67,008
VK2VFI	48,428	—	—	—	—	—	46,428	48,428

24 HOUR SECTION

ZL1AZV	524,250	201,880	5,301	110,250	34,500	960	3,389,485	3,712,448
ZL2AH	124,509	71,900	85,860	—	540	—	967,315	890,187
ZL1AK	578,820	—	—	—	—	—	579,820	629,712
ZL3AJX	67,280	18,830	+ 2,214	—	—	—	228,415	235,238
ZL3APC	2,736	4,080	72,912	—	100	—	167,936	171,738
ZL2B	18,788	37,200	2,340	5	—	—	165,884	168,685
ZL2BKM	—	—	—	—	10,380	5,040	38,150	12,640
ZL2BIM	—	—	—	—	27,200	—	27,200	27,880
ZL3TX	714	432	—	—	3,600	200	7,384	7,714

Results of the VK/ZL 1981 Contest

Neil Penfold VK6NE
388 Muntrie Road, Woodlands, W.A.

And another year's contest result shows how the bands vary greatly from year to year. With the new W.I.A. Rules, many operators took the opportunity to work most of the bands available, and produce good scores. It's our intention to continue with similar rules in 1983. But please note, the '82 Rules are from NZART, and are quite different.

The results show quite a lot of differences in the claimed scores to the corrected score. This was generally brought about by the entrants, not removing dupli-

cate contacts from their logs. Perhaps we should follow the ARRL and say, "an entry WILL BE disqualified if more than two per cent duplicate QSO's are claimed for credit."

Everyone claimed to have abided by the Rules (but Rafferty has no part in the VK/ZL Contest). Some entrants indicated the Prefix first time worked, but did not attach a list of Prefixes worked. Many made very little effort to remove duplicates, perhaps feeling the task just too tedious to carry out. A contest should be a test of operating skill, and skill in operating means ACCURACY. From the number of log entries that we found incorrect, the serial number exchangers were not acknowledged, and also the number of incorrect call signs noted in the logs has risen over previous years. Perhaps there are a lot of pirates around!

It has become apparent that many operators are unsure of what constitutes a Prefix, and we grant you, some are sure mystifying. UK2G --, UK2P --, UK2R --, UK2B --, are all UK2 prefix and not separate prefixes. Now some quotes from the top:—

"Congrats on the revamped format, I certainly kept things moving." "I like the idea of Prefix multipliers and method of points allocated for individual bands QSO's. Hope the '82 test is the same."—"ZL2HQ. "It would be highly preferable that the Rules remain the same from year to year."—"ZL2BR. (We agree, but who is to decide which set of Rules are best. From log comments, our scoring system this year has met with great favour, yet our NZART counterpart doesn't agree with them.) "Conditions on 80m were terrible, also, seemed to be a few who didn't notice the change to a new set of numbers for each band."—"ZL2AGY. "My first contest in 2 years of operating and I think I've got the bug—thoroughly enjoyed myself."—"VK5ARO. "Is the eight hour section, eight hours summed over several periods or all within an 8 hour (start to finish) period."—"Warren. (It is meant to be an 8 hour continuous period, e.g., 0001 to 0800 hrs.) "All band score calculations used a different formula from that of last year's contest, and would like to commend that this year's scoring method gives a much better deal to the person active on all bands."—"Phil Baker. "Found this year's contest most excellent, particularly the new scoring format, and encouraging 160m."—"VK3BEE. "Congrats on a contest with a purpose, to use and populate all amateur HF bands."—"VK2XT. "Took me 10, 15 and 20m to get 1000 QSO's last year ('81) in about 15 hours, so think this one will be my swan song in DX contests. 43 years operating and getting too old to hear properly."—"VK4LT. (Come on, Al, a couple more, just to show the young ones how to do it.)

And that finishes another Contest. Please remember, 1982 Rules are from NZART, and are different from 1981 WIA rules. Thanks to all those who participated. See you in '83.

VK6NE WIA VK/ZL Contest Manager
VK6FS Log Checker and Scorer

ZL4OP	3	—	750	—	—	240	4,284	2,117
ZL3HT	—	—	—	—	120	1,120	2,240	1,840

24 HOUR — CW USING INTERNATIONAL SYSTEM

Call	Class	QSO's	Multi's	Points	Corrected Total	Claimed Total	Penalty Unremoved Duplicates
VK4XA	M	1083	500	2594	1,234,472	1,342,848	17,328
VK2AYD	M	758	374	2170	809,145	214,515	2,435
VK2AGF	M	491	280	1191	333,480	335,018	—
VK8IT	M	354	198	567	111,590	115,221	678
VK2GRW	M	324	166	555	101,497	7,098,240	203
VK7RY	M	236	159	495	75,548	12,432	157
VK2DID	M	278	128	682	74,421	78,920	76
VK6IS	M	193	103	430	67,210	97,210	—
VK5D2	M	192	123	353	49,419	14,773	—
VK5ZF	M	174	81	407	32,835	33,200	132
VK6FS	M	93	70	289	20,220	20,220	—
VK6RZ	40	148	77	730	56,210	56,480	—
VK3MR	20	582	237	682	131,188	137,703	925
VK3MJ	15	248	122	490	80,270	58,699	242
VK3XB	—	—	—	—	CHECK	—	—
VK2APK	—	—	—	—	—	—	—

8 HOUR — CW

VK6AJ	M	391	229	942	218,718	210,086	—
VK6YO	M	180	110	509	55,678	57,054	112
VK3RJ	10	302	97	606	58,684	59,384	118

24 HOUR — CW

ZL2BR	M	1089	458	1904	846,487	283,738	23,545
ZL1AZV	M	558	351	2312	800,151	888,410	11,361
ZL2RY	M	798	375	1816	668,500	668,500	—
ZL2OM	M	611	330	1464	478,772	803,880	4,348
ZL1HV	M	445	256	1365	257,031	273,222	2,879
ZL2AGY	M	374	229	1528	350,141	78,215	—
ZL1APW	M	344	219	718	157,242	53,811	—
ZL1AU	M	280	184	734	138,096	138,070	—
ZL4OP	M	183	103	280	28,870	12,358	—
ZL1AIZ/2	40	280	130	1400	181,272	184,600	728
ZL3AG1	20	382	150	352	52,747	52,244	53
ZL2BDC	CHECK	—	—	—	—	—	—

8 HOUR — CW

ZL1BHQ	M	398	220	832	182,887	190,818	183
ZL2AH	15	180	90	320	28,800	58,112	29

LISTENERS

L3-0042	M	126	98	284	27,284	30,300	—
ZL1-261	M	67	38	181	5,279	13,878	—

24 HOUR — SSB

VK3MS	M	2316	721	3819	2,807,534	929,086	145,098
VK2XT	M	1186	384	3047	1,084,035	1,127,890	21,073
VK1RJ	M	934	312	1804	499,848	224,924	500
VK6FS	M	604	315	1339	418,320	418,320	—
VK6ALZ	M	427	181	1212	219,372	223,680	—
VK5HOD	M	489	171	1241	211,574	218,789	637
VK3SM	M	363	190	716	135,171	131,404	679
VK2BGS	M	349	140	655	120,680	123,818	242
VK6JS	M	228	151	580	89,080	89,080	—
VK5BW	M	126	83	289	78,640	48,590	—
VK4VQG	M	129	83	328	28,137	28,478	—
VK3AIE	M	55	44	151	8,844	3,775	—
VK1LF	M	28	24	41	894	1,275	—
VK3BEE	180	20	10	400	4,000	3,800	—
VK5ARO	20	477	216	477	103,988	103,690	—
VK3DEB	20	29	28	29	812	812	—
VK2NDK	10	1228	287	3684	1,057,308	1,073,580	40,178
VK4LT	10	1007	293	3021	858,829	920,856	28,324
VK4SF	10	464	174	1382	238,302	252,384	2,906
VK2KCN	10	358	168	1074	178,284	179,358	—
VK2PLY	10	100	63	300	18,881	19,382	19
VK3ANP	10	51	30	153	4,590	4,284	—
VK3XB	—	—	—	—	CHECK	—	—
VK2APK	—	—	—	—	—	—	—

8 HOUR — SSB

VK6YO	M	352	228	882	148,482	151,182	150
VK5OU	M	373	182	482	87,836	137,638	88
VK5ABW	15	531	144	1022	152,922	147,818	—
VK3BMA	15	390	97	780	75,660	74,880	—
VK5NS1	10	242	91	726	98,066	67,068	—
VK2VFI	10	212	73	626	46,428	46,428	—

24 HOUR — SSB

ZL1AZV	M	1589	678	5128	3,369,405	3,712,448	87,063
ZL2AH	M	1070	454	2150	967,315	928,187	8,785
ZL3AAX	M	534	180	1277	229,415	235,238	445
ZL3ABC	M	475	256	656	167,936	171,738	—

ZL2RY	M	359	295	810	165,864	198,665	198
ZL2BKM	M	73	35	1090	36,150	12,640	—
ZL3TX	M	38	28	253	7,364	7,714	—
ZL4OP	M	37	26	153	4,284	2,117	—
ZL3HT	M	16	7	320	2,340	1,840	—
ZL2B M	80	68	41	680	27,200	27,880	—
ZL1AKY	10	903	216	2709	579,820	583,712	4,676

PLEASE NOTE: It is our intention NOT to allow VK/ZL Contest contacts on the new "WARC" bands.

John Moyle Field Day Participants



Photograph from Geoff Tonkin

During the John Moyle Contest members of Warrnambool Amateur Radio Club set up a station at Crowes Lookout in the Otway Ranges.

Photograph shows the aerials which

were used to operate all bands up to 2 metres. The aerials used were a TH3 for the HF bands, 11 elements on 2 metres, 3 elements on 6 metres, half-wave dipole for 2 metres, a dipole on 80 metres and a 80 metre vertical.

This year Brisbane North Radio Club also participated in the John Moyle Contest.

All bands were operated in the six-hour

contest from the grounds of Padua Cottage, at Kedron. The call sign used was VK4WIN, with a good score being obtained and an enjoyable day was had by all.



Margaret VK4NHL operating on the ten metre band.



Peter VK4VAG and Edd VK4ABX operating on fifteen metres.

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The Home Computer — to be or not to be

G G Down VK4XY
—From "Jimmy", September 1981

If you are a dedicated type, and you must be to be reading this magazine, the thought has probably crossed your mind, "Do I want to have a home computer?" The answer to this question is very simple — yes, everybody wants to have more things. So I'll put to you a second question, "Having got the home computer, what am I going to do with it?" The answer to this question is not so simple. In fact, I find it almost impossible to answer. I have been pursuing an answer for a long time now I have asked many people and received answers ranging from "anything" to "everything". My immediate response is "will it clean my shoes?"

At this stage I am either cast aside as too far gone, or given a very intimate talk on the innards of computers and how to go about —

1. Closing the windows when it starts to rain.
2. Cooking breakfast every morning.
3. Storing an XYL's recipes
4. Turn on the sprinklers at sunrise, etc., and so the list goes on

So far, I have not come across anything I can do with the home computer that I cannot do quicker and cheaper than with normal household resources

However, I am still interested in the home computer and I will acquire one some day, probably before I find out what I am going to do with it.

It's the works inside that interest me. How do we get the thing to perform? Having got inside, I find it is not so complicated. The heart and/or the brain is the microprocessor and a lot of repetitive circuitry called RAM and ROM, or if you are really in luck PROM and EPROM.

These are connected to the brain and we communicate with the brain by means of other circuitry known as buffers, interface, etc. The buffers, interface, etc., convert our language to a language the machine can understand and respond to.

So there we have it. If we put all these things together into what we call a "black box" as distinct from the "black box" that we all know, there seems to be a remarkable similarity between a bloke sitting in front of a "blue box" communicating with his fingers and eyes and a bloke sitting in front of a "black box" communicating with his mouth and ears.

Have I found the answer to question 2? Communicating or programming, as it is known in the other, would seem to be the challenge that is issued by these machines. This is something that you can take at your own pace. If you really get fair dinkum and won't admit defeat to a man-made machine, you had better say farewell to the family, have your food parcel given to you through a small slot in the door and go QRT forever. ■

NATIONAL EMC ADVISORY SERVICE

Tony Tregate VK3QQ
38 Wattle Drive, Watsonia 3087

THE RADIO COMMUNICATIONS ACT

The new Radio Communications Act is due to be introduced into Parliament during the coming Autumn session. The section which will perhaps be of most interest to the Amateur Radio Service, will be the legislation covering susceptibility and immunity of domestic electronics equipment to unwanted radio frequency energy.

The Amateur Radio Service must avail itself of every opportunity to ensure that the standards and figures laid down in the immunity section of the new Act, are fair and reasonable towards the amateur radio service. Amateur Radio operators are uniquely and eminently qualified to discuss the subject of radio frequency interference, including its causes and cures, as such interference is as old as radio itself. Without exception, the early radio inventors and pioneers were radio amateurs. The sophisticated communications systems, techniques, and equipments of today have had amateur radio as their starting point.

RESPONSIBILITY

Every amateur radio operator in Australia has a responsibility and a duty to ensure that he or she has a full understanding of the RFI and EMC legislation contained in the new Radio Communication Act. Don't leave it to others because you do not understand the legal or technical terms — "talk about it over the air and at club meetings, make a noise if you don't agree," but most of all — "DON'T BE APATHETIC." If bad legislation gets through Parliament, we will suffer this for ever.

Perhaps we should look at a few comments from the USA, where perhaps the main voice for RFI legislation is Senator Barry Goldwater, K7UGA — "In the face of an expanding electronic age, with radio frequency energy fields present everywhere and increasing all the time, home electronic equipment (such as television receivers, burglar alarms and the like) have suffered interference due to inability to reject unwanted signals. The solution to the problem consists of incorporation of inexpensive filtering methods into the design of such equipment."

INCIDENTAL RADIATION

This brings us to the other problem area for the amateur radio operator; again we can put the USA comments to good use in order to illustrate the position. After TVI and AFI the amateur's biggest problem is interference to his reception by man made noise. Overhead power lines

are without doubt the biggest contributor in this area. Man-made noise must be included in any RFI legislation. The FCC rules and regulations are quite interesting on the subject of PLI — "A device that radiates radio frequency energy during the course of its operation although the device is not intentionally designed to generate radio frequency energy. Operation of these devices is subject to the conditions that no harmful interference is caused by emission radiation or induction which endangers the functioning of a radionavigation service or of other safety services or seriously degrades, obstructs or repeatedly interrupts a radiocommunication service operating in accordance with licence regulations. An incidental radiation device (overhead power line) shall be operated so that radio frequency energy that is emitted does not cause harmful interference. In the event that harmful interference is caused, the operator of the device shall take all steps to eliminate the interference."

Although the Australian power generation and distribution authorities are working on the problem of incidental radiation; perhaps the right sort of legislation would help to reduce or eliminate those "high-level" spark transmitters. Of course, more and improved direct co-operation by the power generation and distribution authorities would be a large contribution towards reducing the pollution caused by power lines.

DIRECTORY OF ASSISTANCE

Co-operation by a large number of equipment manufacturers and agents was reflected in the RFI Directory of Assistance, March Amateur Radio magazine. Unfortunately, the DOC information was omitted due to circumstances beyond our control. However, this information is now contained below, and the next time the directory is published, it will be as complete as possible. ■

EMC (Electro Magnetic Compatibility)

If radio frequency interference is causing you a problem you are reminded that — "Advice on all types and aspects of interference (PLI, TVI, AFI, etc.) is available from the National EMC Advisory Service".

FORWARD DETAILS TO

VK3QQ,
Federal EMC Co-ordinator, QTHR.

OPERATIONS BRANCH OF THE DEPARTMENT OF COMMUNICATIONS

HEADQUARTERS

Assistant Secretary:

Merland House, 570 Bourke Street,
Melbourne, 3000

(03) 609 1555

Postal: GPO Box 5412CC, Melbourne, 3001

REGULATORY AND LICENSING SECTION

NEW SOUTH WALES

State Manager:
MLC Building,
105-153 Miller Street, North Sydney, 2060 (02) 922 9111
Postal: PO Box 970, North Sydney 2060

District Radio Inspector
Australian Government Offices,
Molesworth Street, Lismore, 2480 (066) 21 6393

District Radio Inspector
741 Hunter Street, Newcastle West, 2302 (049) 22 3000
Postal: PO Box 2189, Dangar, 2309

District Radio Inspector:
28 Bridge Street, Tamworth, 2340 (067) 65 7969
Postal: PO Box W75, West Tamworth, 2340

District Radio Inspector:
6 Station Place, Wagga Wagga, 2650 (069) 21 1855
Postal: PO Box S266, South Wagga Wagga, 2650

District Radio Inspector:
Aust. Govt. Offices, 88-88 Market Street,
Wollongong, 2500 (042) 28 9611
Postal: PO Box 1766, Wollongong, 2500

VICTORIA

State Manager.
5th Floor, 14 Queens Road, Melbourne, 3004 (03) 26 6921

District Radio Inspector:
114 Armstrong Street South, Ballarat, 3350 (053) 31 1317

District Radio Inspector
44a Nunn Street, Benalla, 3672 (057) 22 1111

District Radio Inspector:
Hills Bazaar Bldg., Bath Lane, Bendigo, 3550 (054) 43 1110
Postal: PO Box 458, Bendigo, 3550

District Radio Inspector
Australian Government Centre,
79-81 Raymond Street, Sale, 3850 (051) 44 4555

QUEENSLAND

State Manager.
10th Floor, Aviation House,
Cnr. Wickham & Ballow Streets,
Fortitude Valley, 4006 (07) 52 8822
Postal: PO Box 555, Fortitude Valley, 4006

District Radio Inspector
Lonsdale Court, 49 Walker Street,
Bundaberg, 4670 (071) 72 2135
Postal: PO Box 862, Bundaberg, 4670

District Radio Inspector.
State Government Insurance Office,
Cnr. Shields Street and The Esplanade,
Cairns, 4870 (070) 51 4333
Postal: PO Box 1225, Cairns, 4870

QUEENSLAND (cont.)

District Radio Inspector:
2A Sydney Street, Mackay, 4740 (079) 51 1828
Postal: PO Box 337, Mackay, 4740

District Radio Inspector.
38 Marian Street, Room 1, Mt. Isa, 4825 (077) 43 6672
Postal: PO Box 1401, Rockhampton, 4700

District Radio Inspector:
6 East Street, Rockhampton, 4700 (079) 27 6922
Postal: PO Box 1401, Rockhampton, 4700

District Radio Inspector.
52-50 Sturt Street, Townsville, 4810 (077) 71 5685
Postal: PO Box 522, Townsville, 4810

SOUTH AUSTRALIA

State Manager:
CBE Bldg, 106-116 King William Street,
Adelaide, 5000 (08) 212 2153
Postal: GPO Box 2248, Adelaide, 5001

District Radio Inspector:
40 James Street, Mt. Gambier, 5290 (087) 25 6170
Postal: PO Box 1545, Mt. Gambier, 5290

District Radio Inspector:
Customs House, Horwood St., Whyalla, 5600 (086) 45 5999
Postal: PO Box 575, Whyalla, 5600

WESTERN AUSTRALIA

State Manager:
1st Floor, CAGA Centre,
256 Adelaide Terrace, Perth, 6000 (09) 325 5877
Postal: PO Box 6189, Perth, Hay St East, 6000

TASMANIA

State Manager:
1st Floor, Continental Building,
162 Macquarie Street, Hobart, 7000 (002) 20 5011
Postal: PO Box 63, Sandy Bay, 7005

AUSTRALIAN CAPITAL TERRITORY

District Radio Inspector
7 Sargood Street, O'Connor, 2601 (062) 47 0677
Postal: PO Box 40, O'Connor, 2601

NORTHERN TERRITORY

District Radio Inspector:
CML Building, 61 Smith Street, Darwin, 5790 (089) 81 5566
Postal: PO Box 2540, Darwin, 5794

LETTERS TO THE EDITOR



Any opinion expressed under this heading is the individual opinion of the writer and does not necessarily coincide with that of the publisher.

202 Frankston-Rivers Road, Balaclava 3926

The Editor
Dear Sir

During the ROATC call-back a southern amateur in his twilight years happened to mention that his rotary beam had been damaged by a windstorm and that he was unable to effect repairs.

The gentleman concerned has seen some seventy-five summers and is not as apt as he once was. He was, therefore, very grateful when I called to repair the beam for material cost only.

The thought did occur to me that the clubs would, perhaps, be agreeable to accepting the responsibility of helping those in need by having younger members who visited such persons at agreed intervals or who will come upon request, to perform tasks which are no longer within the capabilities of the "old-timers".

Volunteers?

73, Syd Clark VK3ASC

The Editor,
Dear Sir

"PEDANTIC"

I have just read the letter from Harry VK5WZ (A.R. Feb 1982) Whereas I lay no claim to journalism, I would like to comment on the writer's little excursion into pedantry and inconsistency.

To "journalize" now has a specific meaning to a special group of people and I'm sure that no disrespect to journalists was ever intended. Just as a computer with a RAM board fully populated casts no aspersions on sheep or the human race.

We have, in amateur radio, a sophisticated hobby using sophisticated equipment with a sophisticated jargon but that does not mean that we are engaged in sophistry.

Your correspondent claims to have been "a ham since 1937". Everyone, specialist or not, knows that ham is the end of the pig which has been cured, most folk know that amateurs are incurable. I therefore like to think of Harry as a licensed amateur with a sense of humour.

Yours faithfully

Harold Wright VK2A99H

Post Office Residence, Fine Ridge, NSW 2343
28th February, 1982

The Editor,
Dear Sir

In answer to the query raised in the February "How's OK" regarding confiscation of mail in some parts of the world.

I encountered this problem some years ago with migrants sending mail back home and apart from forwarding mail by registered post, it was found that using the cheapest form of envelope, preferably the old Manila variety, and using a heavy postmark to almost obliterate the stamp usually resulted in the mail getting through.

It is suggested that anyone encountering this problem try this and ask the local postmaster if he would put a heavy postmark over the stamps.

Yours sincerely,

Tony Badger L20001

Post Office Box 122, Avondale Heights 3034
The Editor,
3rd December, 1981

I am writing on behalf of the Kellor Radio Amateur Group (K.R.A.G.) to inform you about our club.

The Group was formed to serve the western suburbs of Melbourne and meets on the second Thursday of the month. The meetings are held at the Kellor Heights High School in Quinn Grove, East Kellor, commencing at 7.30 p.m.

New members are welcome and all enquiries may be addressed to Post Office Box 122, Avondale Heights, Victoria, 3034.

Yours faithfully

Paul Engler VK3XDE, Hon. Secretary.

74 Frayser Street, Tooty, 2263
22nd December, 1981

The Editor,
Dear Sir,
Re page 39 of December A.R. by VK5WV on XZSA Burma

The following comments may help Bill to make up his mind by providing some background to the complex situation in Burma. I worked in Burma 1979-80 in the Aviation/Communications field as a U.N. official at the request of the Burmese Government and through my work I had fairly extensive contacts both at Government and Diplomatic levels.

Because of the Socialist/Military Government and the isolationist policy, embraced since WWII, it is only recently that foreigners have been allowed into the country and even now visitors/tourists can only stay 7 days on a non-renewable visa. Communications are even worse than during WWII as the equipment and vehicles brought in by Britain and US wears out. With a normal wage of \$A100 per day there is considerable unrest which, I was informed, was fermented by neighbouring countries of different ideologies. This is particularly evident in the eastern mountainous Kachin, Shan and Kayah divisions (forming part of the "Golden Triangle") where there are approximately 15 national groups and where military operations take place continually. Even as far west as Heho, the airport, although under military protection by day, is virtually under miscreant/smuggler/rebel control by night. Foreigners (in particular, tourists) are not permitted to travel by road further than 50 km from Rangoon, although they can try to authorized tourist places such as Mandalay.

I make no claim to be a political expert but I do know that the outer areas, being under the command of military men, with tenuous links to Rangoon, do not always carry out central government policy even if they know it. Also, Burma is no different to practically all other undeveloped nations in that what we call corruption is the normal way of life. I tried through personal contact with the Chief Engineer of Telecom to get an amateur licence but was told it was not in accord with Government policy. I tried through the U.N. to get the ear of the Minister without success.

My opinion, for what it is worth, is that the station in Burma is allowed to operate by the local area commander who has like Lord Nelson, had sight in one eye; especially if the op can supply modern radio equipment which can (later?) be modified for army use.

Although there are isolated local areas of rebellion, which are constantly shifting, there is no "Government in exile" as such anywhere in Burma. The only states (divisions) in Burma are Sagaing, Chin, Magway, Arakan, Inawthady, Rangoon, Pegu, Yonassawin, Mon, Karen, Kayah, Mandalay, Shan and Kachin.

Sincerely,

J. W. Faulkner VK2AZP

55 James Street Launceston, Tasmania 7307
18th March 1982

The Editor,
Dear Sir,

I would like to reply to the 13rd last paragraph of the article on page 37 of the March issue — "Listening Around" — by Joe VK2BXJ.

In the article, Joe states that many years ago his favourite LS Amateur was Reg WM TH, and I quote Joe, "I wonder what WM TH would think of the little black boxes if he is still around today."

Well, I can answer Joe's question. Reg is still around today, and he would be one of the top Amateurs in USA today. For his little "black boxes" he uses lovely big "grey boxes" called Collins, plus many others.

He is very active in working the Satellite and so on.

Reg has been a sad and amateur for many years and he is a great friend of a very good friend of mine — the famous Grote Reber, the Radio Astronomer, who built the first Parabolic dish in USA. This dish is displayed at Grote's home town Wheaton, Illinois.

Reg recently sent me a book called "The Big Ear" by John Kraus, which I can recommend to all Amateurs.

So, Joe, Reg is still around.

Yours faithfully,

J. Davis VK7OW

2 Darnley Street, MIELE 3900
10th March, 1982

The Editor,
Dear Sir,

CQ EX-WRAAF AND RAAF MEMBERS

In line with the other branches of the Armed Forces we are attempting to establish a regular net for ex-members of the WRAAF and RAAF. We would, therefore, be very grateful if you could see fit to publish this letter in your magazine so that we may gain some much needed publicity.

All former members, regardless of mustering, are welcome to join the net which is very much in its formative stages at present. Its future success, and the subsequent formation of any society, depends on the participation of as many former members as possible, including SWLs.

So that we may gauge the degree of interest and obtain as many suggestions and points of view as possible, I suggest that all interested operators join the net on the 2nd and 4th Tuesdays of each month on 3560 KHz ± at 1000z (2000 hrs. E.S.T.). Let us show that we can do as well as our counterparts in the "Senior" Services.

Any further information can be obtained from the writer but please enclose a SAE Stationer's letter for at the commencement of the net as VK3DWSV (Fred), VK3VVT (Alan) and myself (VK3DWSV).

Yours sincerely,

Stan Willams VK3DWSV

138 Webb Street, Mount Isa. Qld 4825
21st March 1982

The Editor,
Dear Sir,

I know we have all read and heard it before, but I feel I would like to comment I have just been listening around the 15 m CW bands. As usual on a Sunday afternoon there is the usual VK7M... on phone at 21'13 with a QSO with a P2B w/1 on.

After I listened for about 5 minutes the comment was made, "Let's move up 2 kcs, this CW is a damn nuisance."

I feel it's about time that the "Gentlemen's agreement" was scrapped and positive rules were laid down about operating phone in the so-called CW parts of the bands I know when I was trying to improve my CW as a novice, many weekends were wiped out by stations operating phone in the narrow novice CW sections, and mainly VK stations at that.

75s to 88s,

Mike Hastings VK4BFO (ex-VK4VFO) ■

142 Sutherland Road, Beaconsfield, NSW 2119
27th March, 1982

The Editor,
Dear Sir,

HAVE YOU BEEN CAUGHT?

I bought an expensive transceiver (\$1,700). In no time it started to go wrong. The Agents dutifully fixed it up each time free of charge.

They even were generous enough to give me an extra year's warranty. I cannot speak highly enough of them. But now, the warranty has expired, and the bumpy ride begins!

I have just got the set back (again!) and find that the parts replaced cost \$2.04, and (fasten your seat-belts) the labour cost was \$105.00.

Two and a half hours at \$42.00 per hour. I have no doubt that a technician capable of poking about inside a sophisticated set deserves every cent of \$42.00 per hour.

But, my question is, seeing these high-inflation sets go wrong every time I burp, can ordinary mortals afford to buy such traps? In other words, has the "State of the Art" got out of hand, and we need to get back to good old reliable valve sets that go and go and go?

Is there anyone else that has been caught?

Yours faithfully,

Norman Blake VK2KDG ■

LETTER TO THE SECRETARY

9 Greasy Street, New Town, Tasmania 7008
2nd January, 1982

The Secretary,
Federal Executive,
Wireless Institute of Australia
Box 150,
Toorak, Victoria.
Dear OM,

Having been elevated to Life Membership of the Institute, I do not have a Bill rendered to me for the services provided by the Institute. I, therefore, make my donation to the Institute Funds, and forward my cheque for \$26.50 to be split in three ways, the Federal component, the VK7 Divisional component, and the VK7 Southern Branch component.

We are beginning to see the fruits of the work done by the Institute in connection with WARC 79 by the allocation of the 10 MHz band beginning in a month. On the law of averages, I should be no more by the time WARC 89 arrives. Even if I should still be alive then, my chances of being able to contribute to WARC 89 funds would be at best limited if at all. It would, therefore, be my suggestion that the Federal Convention later this year should consider instituting an Annual Levy towards WARC 89 for all members 50 cents a year from now till then from the entire membership would provide a nice sum. Amateur representation at WARC is absolutely necessary.

With respect to WARC 79, I wish to add by personal congratulations to VK3KI and VK3ADW for what they did achieve to advance this truly international hobby. Their work was really great in that they made the time available to go to the actual WARC itself. I do however, recognize that there was a lot of back-up work to support them, and that work, too, is worthy of the highest commendation. I hope that the Federal body can maintain an on-going preparation for the next major WARC as well as the smaller specialised WARC's in between.

My final remarks relate to the continuing good work by Ron VK3OM and Bill VK3ARZ in providing the Federal notes so regularly. This contribution does keep those of us who are remote from the major centres in touch with what is going on to enhance our hobby.

Yours truly,

Ian A. Nichols VK7ZZ ■

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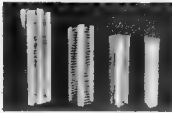
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3-16	3/4"	16 3"	No. 3011	\$2.15
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4-16	1"	16 3"	No. 3015	\$2.40
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References: ARRL Handbook, 1961; "QST" March 1959; "Amateur Radio", December 1959.

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This month we have two award columns as this will be Bill VK5WV's last column and Mike VK6HD's first.

Many thanks to Bill for doing such a fine job and welcome and good wishes to Mike. (Ed.)

Bill's Column

Bill Verrall VK5WV
7 Liac Avenue, Finders Park, S.A. 5025

Here are details of three awards which are available from some of our near neighbours.

BIRD OF PARADISE AWARD

This award has been available for some years from the Papua New Guinea Amateur Radio Society for contacting P29 stations. The Bird of Paradise is a unique native bird which has been adopted as the national emblem for PNG and appears on the P29 flag.

Amateur stations in Oceania must contact 7 Papua New Guinea (P29) stations in at least 5 provinces. Other stations must contact 5 PNG stations in at least 3 provinces. The provinces are West Sepik, Western, South Highlands, Chimbu, Madang, Morobe, New Ireland, East New Britain, Central, Milne Bay, East Sepik, Enga, West Highlands, Gulf, East Highlands, Manus, West New Britain, Northern, Capital District and North Solomons.

Only QSO's after 16th September 1975 count and any authorised band and mode is acceptable.

Send log details only and 10 IRC's to the Awards Committee, PNG ARS, PO Box 204, Port Moresby, Papua New Guinea.

DESCRIPTION

This award is printed in three colours on high quality matt card. The map outline is in yellow, with motif and artifacts illustrations in red and yellow and all printing in black. This is a most attractive award to display on the shack wall and measures 330 mm x 225 mm.

"4 FROM 44 AWARD"

This is a new award recently released by the Solomon Islands Radio Society.

The rules for the award are:

1. Contacts with any land based (NOT/MM) Solomon Islands (H44) Amateurs, made on or after 7th July 1978, Solomon Islands Independence Day, will count for the purpose of this award.

Certificate No. 106
Dated 30-4-79

2. Four Solomon Islands stations must be contacted to qualify for the award. (Hence 4 from 44).
3. Contacts may be any band, any mode and endorsement will be given, if requested, as follows: Single (named) Band, Single (named) Mode, Satellite, etc.
4. For all Satellite Awards and on 50 MHz and above, multiple contacts with the same station separated by at least 12 hours will be acceptable.
5. Log extracts, certified by two other amateurs, National Society, or Radio Club etc., should show date, time (UTC), band, mode and station worked.

DO NOT SEND QSL CARDS UNLESS ENCLOSING EXTRA POSTAGE.

6. The award is also available to SWL's.
7. The cost of the award is US\$2.00, £1.00 or 12 IRC's and applications should be sent to:

The Awards Manager, SIRS, Box 418, Honiara, Solomon Islands.

DESCRIPTION

This is another award which should be displayed in the shack. The multicolour print illustrates some indigenous housing, common to the Solomon Islands, with all printing in red, measuring 250 mm x 210 mm. When the details in this print are examined, it is easy for the imagination

SOLOMON ISLANDS RADIO SOCIETY

4 FROM 44 AWARD

Endorsements

Number SAMPLE
Presented to
On

Solomon Islands Radio Society

to go astray, for example, no more shoes and socks, no more shaving, a fish trap tethered in the river, a pole with a TH6DX mounted thereon and I will stop there! With a little effort, most VKs should be able to qualify for this award if they have not already worked the required four H44 stations.

"CATCH 22" AWARD

This award is so new, that copies were not available from the printer at the time of writing. By the time you read this, some of the lucky operators including your truly, hopefully will possess this award.

The award is sponsored by the Hong Kong Amateur Radio Transmitting Society and is additional to the "Firecracker" and "Nine Dragons" awards which are also available from HARTS. If you have consistently worked your share of rare DX over the past couple of years, you may be able to qualify for the basic award with a little more effort. If you are starting from scratch, this award must be included in the very hard category.

Contacts with the following 25 countries ONLY are accepted for this award: VS6, CR9, BV, BY, XV, XW, XZ, S2, VU2-INDIA, A4X, A6C, HZ, ST, SU, 5A, TT, 5U7, 7X, T2, ST, CN, C6, C0, XE, and KH8.

There are three classes viz:

- Basic Class 3 — 15 countries
- Class 2 — 20 countries
- Class 3 — 25 countries

QSOs from 1st January 1980 are permissible and a log extract only signed by two licensed amateurs of equal or greater grade than yourself should be addressed to Awards Manager, HARTS, P.O. Box 541, Hong Kong Asia.

The cost of the award is \$US7.00 or equivalent because this certificate has had artwork done by artists. As previously mentioned, I have not seen this award but it will be the same or better standard than the other two VS6 awards and therefore well worth the effort to qualify. Thank you GUL VKBYL for the details.

This is my final contribution as FAM and I welcome Mike VK6HD/QTHR who is your FAM for the next three years.

May I thank all for their support during my term of office and I apologise to those few who have sent me information that I have not included in this column. The FAM is sometimes restricted with publication space and other priorities when writing for AR. However, I request that if you have recently received an award or have other information which you think may interest award hunters, make photocopies of the award, rules, material, etc., and post off to Mike who would welcome such information for possible inclusion in future editions of AR.

I would like to sign off with my final QSL card story. During 1981, I worked a reasonably rare DX station in the Northern Hemisphere. The operator was an Australian who was using a legitimately authorised call sign for the country under a reciprocal licensing agreement. He stated that anybody who required a QSL card should

send their QSL card to his VK callbook address and he would reply to all QSLs received when he returned to Australia. I decided that I would like to receive a QSL card for my QSO, to confirm the country on a different band. I sent along my QSL card with a self addressed stamped envelope to his VK callbook address and, after a wait of several months, received his QSL card in return. However, my envelope was unsealed, had "card only" written on the front and my 24 cent stamp had been removed and replaced with an 18 cent Christmas stamp. I guess it takes all types to be an amateur!

Good Hunting.

Mike's Column

Mike Bazley VK6HD
8 James Road, Kalamunda 6076

It is always difficult to step into someone else's shoes and it is doubly difficult when your predecessor has done such a good job. Many thanks, Bill, for your efforts over the past three years and I hope that I can reach your excellent standard.

My first problem is sorting through the 40 kg parcel of records that Bill forwarded to me. Yes, 40 kg. The mind boggles! Please have patience during the next few months whilst yours truly attempts to digest this mountain of paper.

In an attempt to reduce cost to the Federal Executive and also to cut down my workload, could I ask that when applying for awards, information, certification or whatever, a stamped addressed envelope is enclosed for the reply.

From DXCC applications and updates already received it would appear that all are not conversant with the DXCC rules. These have appeared in A.R. previously, though I feel it would be worthwhile to reprint them. May I draw applicants attention particularly to Sections 3.4, 4.1, 4.3, 5.1, and 5.4.

QSOs are being accepted for IAOKM, Sovereign Military Order of Malta. This is an addition to the DXCC country list. The total number of countries now on the list, after deletions, is 319.

The IARU, Worked All Continents awards, are available via me. QSL's need to be forwarded to me, with return postage, and I do the rest. The certificates being forwarded to you from I.A.R.U. headquarters. A WAC certificate can be endorsed for: SSB, RTTY, SSTV, Phone, 1.8 MHz, 3.5 MHz, 50 MHz, 144 MHz and 432 MHz. The IARU also issue a Five-band and a Six-band WAC.

73, DX and Happy Hunting.

AUSTRALIAN DX CENTURY CLUB AWARD

This Award was created in order to stimulate interest in working DX in Australia and to give successful applicants tangible recognition of their achievements.

1.2 This Award, to be known as the "DX Century Club" Award, will be issued to any VK amateur

station, or a station operating in a previously Australian administered Territory, who satisfies the following conditions:

- 1.3 A certificate of the Award will be issued to the applicants who show proof of having contacted one hundred countries, and will be endorsed as necessary, for contacts made using only one type of emission.

REQUIREMENTS

- 2.1 Verifications are required from one hundred different countries as shown in the official Countries List.
- 2.2 The official Countries List will be published in "Amateur Radio" and will be amended from time to time as required. Should a country be deleted from the Countries List at any time members and intending members will be credited with such country if the date of contact was before such deletion.
- 2.3 The commencing date for the Award is 1st January, 1946. All contacts made on or after this date may be counted.

OPERATION

- 3.1 All contacts must be made with amateur stations working in the authorized amateur bands.
- 3.2 All contacts must be two-way contacts on the same band. Crossband contacts will not be allowed.
- 3.3 Contacts may be made using an authorized type of emission for the band concerned.
- 3.4 Credit may only be claimed for contacts with stations using regularly-assigned Government call signs for the country concerned.
- 3.5 Contacts made with ship or aircraft stations will not be allowed, but land-based stations may be claimed provided the specific location at the time of contact is clearly shown in the verification.
- 3.6 All stations must be contacted from the same call area by the applicant (except as below) although if the applicant's call sign is subsequently changed, contacts will be allowed under the new call sign provided the applicant is still in the same call area. If the applicant moves to another call area, contacts must be made from within a radius of 150 miles of the previous location to qualify for award purposes. If the distance of the new location from the old exceeds a radius of 150 miles a separate application for a new award must be made claiming only contacts made from the new location.
- 3.7 All contacts must be made when operating in accordance with the Regulations and down in the "Handbook for the Guidance of Operators of Amateur Wireless Stations" or its successor.

VERIFICATIONS

- 4.1 It will be necessary for the applicant to produce verification in the form of QSL cards, or other written evidence showing that two-way contacts have taken place.
- 4.2 Each verification submitted must be exactly as received from the station contacted and altered or forged verifications will be grounds for disqualification of the applicant.
- 4.3 Each verification submitted must show the date and time of contact, type of emission and frequency band used, the report and the location or address of the station at the time of contact.
- 4.4 A check list must accompany every application setting out —
 - 1 the applicant's name and call sign and whether a member of the WIA or not, and
 - 2 the details for each claimed station in accordance with the details required in Rule 4.3.
- 4.5 In lieu of forwarding QSL cards or other written evidence as set out in Rules 4.1 to 4.4 above, a list giving the details is set out in Rule 4.3, certified by the Awards Manager, Secretary, or Council Members of a Division of the Wireless Institute of Australia, or two licensed amateurs known to the applicant, should accompany each application for membership or adjustment of verified country totals.

APPLICATIONS

- 1 Applicants for membership shall be addressed to the Federal Awards Manager, W.A. for the time being, accompanied by the verifications and check list with sufficient postage enclosed for their return to the applicant, registration being included if desired.
- 2 A nominal charge of \$1 or such other amount as may be determined from time to time, which shall also be forwarded with the application, will be made for the issue of the certificate to successful applicants who are non-members of the Wireless Institute of Australia.
- 3 Successful applicants will be listed periodically in "Amateur Radio." Members of the DXCC wishing to have their verified country totals listed, over and above the one hundred necessary for membership will forward to the Federal Awards Manager the verification of contacts set out in Rules 4.1 to 4.5 above.
- 4 In all cases of dispute the decision of the Federal Awards Manager and two officers of the Federal Executive of the WIA in the interpretation and application of these Rules shall be final and binding.
- 5 Notwithstanding anything to the contrary in these Rules the Federal Council of the WIA reserves the right to amend them when necessary.

INTRUDER WATCH



Bob McKernan VK4LG
Box 50 Sandgate, Qld 4017

Generally speaking, Australian amateurs are living in a fool's paradise. The day will surely come when we are very seriously troubled on a HF bands by persistent, immovable intruders. The thing that we can all decide is when this will happen. If you look forward to another 20 years of amateur operating, then you will have to do something about it right away, or the latter half of those years will be less than enjoyable. Do not limit your consideration of your hobby to the immediate future, or that may be all the future there is.

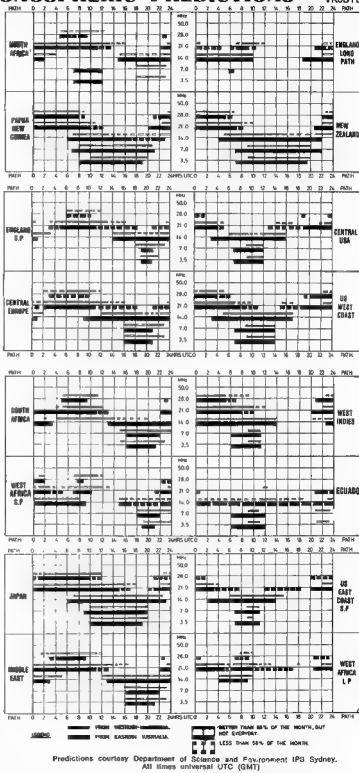
The long term future of amateur radio depends very much on an active Intruder Watch. The other guy will not get involved on your behalf, contrary to popular belief. YOU are the key to the future of amateur radio as an enjoyable hobby.

Now that you want to help, how do you go about it? Check previous IW columns in AR for a start. There has been a fair amount written on two of our most troublesome intruders, UMS on 21032 and CQ5 on 21115. Write all observable details of these intruders and send your observations to your division IW Co-ordinator. If you don't have his address, send details to me at Box 50, Sandgate, Qld. 4017.

If you hear these intruders, and can positively identify them by their call signs, I encourage you to operate exactly on their frequencies. Of course, these frequencies are really yours, so, if anybody has the right to use the frequencies it is you, not the intruders. So, if you have a full call, get on to 21032 CW and give those Russian ships curry.

IONOSPHERIC PREDICTIONS

Len Poynter
VK3BYE



2 METRE ANTENNAS

SCA 21
STAINLESS
STEEL
UNITY

SCA 26
32"
HELICAL
3dB

SCA 25
BASE
LOADED

ACCESSORIES



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MAGNABASE



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**Communicate
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70cm

SCA 31
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STEEL
UNITY

SCA 45
FLEXIBLE
STAINLESS
STEEL WIRE
UNITY

SCA 46
6dB
COLINEAR

SCA 40
END FED TWO
ELEMENT WHIP
4.5dB

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ANTENNAS FOR THE
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QLD. 44 8024
W.A. 446 9177

SILENT KEYS

It is with deep regret that we record the passing of —

J. O. BAIL
E. J. BARTKUS
J. BATES
R. J. CAINS
F. W. CROPLEY
A. M. MYERS
H. SARKADI

VK3ABA
VK7BE
VK2DZB
VK2BEN
VK5MOC
VK3LR
VK3AMY
VK2NIB

OBITUARIES

JAMES BATES

VK2DZB

It is with regret I record the passing of Jim Bates VK2DZB, of Casino. Jim was afflicted with polio at the age of fourteen and in the between years has spent many hours confined to an iron lung and bed. A breathing problem occurred during the period of December 29th and Jim was thus admitted to Lismore Hospital. After a few initial problems, Jim appeared to be going from strength to strength. Jim never awoke from his sleep on January 3rd, 1992.

Jim first entered radio via concerned people such as Russell VK2KEG, Lance VK2MVF and Al VK2VDZ. These lads were some of the few who were responsible for getting Jim "wheel chair mobile", thence the outside world. CB radio came first, followed by further nurturing into amateur radio.

The road ahead was not easy and credit must be given to those who helped along the way and to the Lismore branch of D O C, for bringing the exams right to the wheel chair. Jim started with VK2NRT and progressed to the limited VK2YXJ and VK2KCW and, finally, with persistence made the top late last year.

Many friends were made throughout the world as well as very active roles in 10-10 chapters.

Touring amateurs in the area always received a generous sprinkling of hospitality and on air information.

Jim was cared for by his sister, Jannie, and brother-in-law John and their three sons.

Jim Bates VK2DZB, the lad from Tenterfield, but spending most of his forty-five years in the Casino area — is a beacon surely to be missed.

Adapted from Westlakes Newsletter — VK3XEB

Submitted by Bill Parker VK2KOI

ROBERT J. CAINS

VK2BEN

Robert J. Cains passed away in Hospital on March 2nd, 1992. Bob had been in the Electrical and Communications field for many years. During WW II he worked with CSIRO on radar and after the war he was with Australian National Airways on communications. He had lots of stories to tell how the wartime radio equipment was taken out of DC's and similar planes and virtually thrown away — not realising at the time that he would be interested in amateur radio in later years. Bob worked in USA for about 6 years before retiring in 1976. He joined the Amateur ranks with the call sign VK2BEN about the same time.

He will be missed both on and off the air by all who knew him. Our deepest sympathy is extended to his wife Helen M. daughter Carol and son John, from all his friends.

Gordon Camp VK2MZ



Say You
Saw It In
Amateur Radio

Advertisers' names on the montage, page 51, April AR, were cut directly from advertisers appearing in March AR. Any other regular advertisers inadvertently omitted was unintentional.

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HAMADS

- Eight lines free to all WIA members.
- 50 per 10 words minimum for members.
- Copy in typescript please or in block letters to P.O. Box 150, Toorak, Vic. 3142.
- Repeats may be charged at full rates.
- Closing date: 1st day of the month preceding publication. Cancellations received after about 12th of the month cannot be processed.
- QTHR means address is correct as set out in the WIA current Call Book.

WANTED

VFO for Kenwood TS220. VK3AOT, QTHR. Phone (051) 67 1434.

5m Txcv, solid state, all mode. Price and cond. to VK3BSF, QTHR. Phone (03) 277 0050.

Antenna Scope and GDO. Particulars and price to VK4UG, QTHR. Phone (07) 284 9098.

Army Radioer WWII, any type, prefer working order, special needs — ARS/ATS leads and control box. No. 19 complete or parts. Phone (058) 21 9999 BH, (058) 26 2427 evenings.

Drake T4-X (-B, -C), working order or not, power supply not needed, operating manual essential. Sydney metro, or 100 km radius from GPO only. Phone Claude VK2DLC on (02) 451 2577 or send details to: GPO Box 1840, Sydney, N.S.W. 2001.

Cubical Quad, 10/15 metres or 10/15/20 metres. Bob VK4NLI, 22 Magnatic Drive, Tamborine Mountain 4271. Phone (075) 45 1586.

WJ-6718 Rx with RCM, MCM, ISB, PRE, B10 optional modules if possible. Yenda, N.S.W. Phone (060) 63 0844.

Valves. Desperately in need of 6Y9 (2), 6ES8, 6H8, 6EH7, 8U9, 6X8, 8GW9, 6CS8, 6GV8, 6JW8, 6CM5, new or used, 6Y9 most wanted. Ken VK5ZA. Phone (09) 398 7829.

AWA 55220 Marine Band HF Txcv, service information and circuit wanted, will pay cost of photocopying or will arrange same, as preferred. VK2ZJF, QTHR. Phone (02) 969 4339.

Prop Pitch Motor/s, in working condition. Please send particulars and price to VK2VYM, G/- PO Box 53, Colemally, N.S.W., 2707.

WANTED TO BUY OR SWAP

Converted Kraso CB, SSB and AM, operating on 10 meters, for a fully translocated 2 mhz fm mobile Txcr. Contact Gordon VK4KXB [VKANAX, QTHR. Phone (07) 269 3625.

GIVE AWAY

AR, April 1970 to Dec. 1981, free to VK6 club. L60136, QTHR.

Velvet, type 67, 50, 80, 2AS, 6P7, NU77, NU78, cond unknown, free to restorer/collector. L60136, QTHR.

TRADE HAMADS

CB 40-ch. radio new legal, we convert old CBs to the new 40-ch. FT920MD with all options, \$975. M320, \$250. 40-ch. SSB/AM CB radios, from \$169. Midland miniature marine txcr, \$159. HF marine and outback Txcr, 2 to 10 MHz, \$325. New Zealand approved CB FRG, \$150. Communications Rx, from \$125. Yaseu FRG7, \$275. Drake 2m 10W Txcr, \$159. RTTY Siemens mod. 100 printer, \$120. Ex-RAAF aircraft VHF band Txcr, \$27. Lot of walkie-talkies, 10 to 30 MHz linear amplifier, 30W AM, 70W PEP, SSB, \$159. Self-contained ultra-sonic car and home alarm, \$69. Loud hauler with alarm and 1 km range, \$69. Direction finding communications Rx, LW, MW, SW, FM, CW, SSB, AM, \$229. CB repairs by mail, etc. etc. Park Disposals, 32 Park St., Sydney, NSW. Ph. (02) 264 7515 or phone Sam from 6 pm to 9 pm only (02) 407 1056.

Amidon Permeamagnetic Cores: Large range for all receiver and transmitter applications. For data and price list send 10 x 250 SASE to: R.J. & U.S. Imports, Box 157, Mounts, NSW 2223. (No enquiries at office: 11 Macken St., Oakley, 2231.)

23 cm and 17.4 cm Long Loop Yagi. Use soldered brass and semi rigid coax. Single 663, Twin 5150 and Quad 8222, both with splitters. Mounting details provided. High directivity 70 cm and 23 cm Reversible Yagis, available also 70 cm F.S. meters. Various 170-5100. Prices incl. S.S. Price incl. S.S. We stock WG16 and flanges, also cheap, tested X-band Gunn diodes and Philips Cavities CL6963. Small quantity, 141 semi rigid @ \$4/m. Details of above and of our cheap Microwave Shield Protector System from MICROWAVE DEVELOPMENTS, P.O. Box 274, Mount Barker, S.A. 5251 (VK520). Phone (08) 391 1092.

FOR SALE

Celina KWM-2 with DX Engineering RF speech processor, \$18F-2 power supply and spare tubes, \$760. Collins "S" Line, 759-3B RX with 500 Hz CW filter, 312B-3 speaker control, 325-1 Trans. with HW power supply, set of PCB's and inna. to build frequency synthesiser for 750-3B spare tubes, tri-band yagi, 75; Katsumi MC-22 mic. compressor, \$30. VK3ARY, QTHR. (03) 277 4788.

Icom IC-228, excellent cond., never mobile, no scratches or marks, \$210. Collins minor MT transformers, 115/230V 50/60 Hz primary, 5.0V, 6.3V, 5.2V 750V, 115V sec. Collins part No. 662-031-00 new in packing, four only at \$30 ea.; Elmac SK-510 power valve socket, new, light tarnish, two only at \$12 ea.; Pye Cambridge transceiver, low band FM, very clean cond., \$15; Motorola MRF318, 80W 30-200 MHz 28V base sin. hi-rel power transistors, linear Po vs Pn at 150 MHz, with date, under two only at \$35 ea. Jan Cousins VK5KJ, QTHR. Phone 085 872, ext. 252.

Commodore PET 2001 Computer, built-in green-screen, cassette recorder, power supply and keyboard, reset button, 8K ram, 12K basic rom, and monitor on board, user port and IEEE connections, c. over \$2000 software, can use for RTTY/CW Tx/Rx, log or index system, circuit analysis, entertainment, etc., \$600. John VK3BLN, QTHR. Phone (03) 459 1151.

Hellcrafter FPM300 Mk. II, 250W PEP, 10-20m, 240/12V, perfect, little used, \$275; Yaseu L2000B amplifier, 1200W PEP, as new, \$335. Alec Dan VK2ABU, QTHR. Phone (02) 212 3633, AX 328 1261.

Diocore Antenna, 280 MHz-288 MHz, ex Army, with coax. lead and carry bag, PP \$25. VK2NSE, QTHR. Phone (067) 45 1745.

Yaseu FT401, good cond., \$350. VK251, QTHR.

Texas Headset, complete with boom mic., unused, \$30; 2 x 4CX200B tubes, unused, \$50; Kyoritsu transistor driver 0.435 MHz-220 MHz, \$30; Solaris digital clock, 24 hr., needs some attention, \$10. Phone (03) 787 5581.

Yaseu Digital VFO FY-7070M, to suit FT707, perfect condition, still under warranty, with cables, handbooks and original packing, see it working before you buy, \$200 gables. Contact VK3JGV, QTHR. Geoff. Phone (03) 590 3773.

Swan Astro 182BX Txcrv with match. 20 amp power supply and ext. speaker and both owners and workshop manuals, this solid state rig has dual VFOs, variable pass band, VSWR bridge etc. and is in mint condition. \$590. Erik Brier VK2BEK, QTHR.

Yagi Beam Four Element Monoband, 15 mtrs, gives excellent gain and low SWR, very good condition, \$60. VK2ENT. Phone (02) 88 4596.

RTTY Keyboard and Demod. Iotefech M75-M150, as new condition, in cartons, \$400 the lot. VK280F, QTHR. Phone (03) 53 7349.

Bm Linear, 2m, 70W, P/C, \$150 2m transceiver, 100W output, plugs into Yaseu acc. socket, complete with cables and instructions, P/C \$150. TH80DX brand new in box. \$378. Jim VK4AJ, QTHR. Phone (074) 65 8163.

Super-80 Computer, in case, basic in Rom, 48K Ram, manuals, 10 C10 cassettes, \$700. Peter VK3CR. BR (056) 23 1431, ext. 8. AH (056) 25 2288.

Icom IC701, no PB, \$750 ONO; Icom IC551, all mode with all options, \$550 ONO; Yaseu FT200R, 2m all mode portable, \$335; Teletype Model 15, incl. HB table and transformer, \$85; Hygain DB82, 2m and 2m double band, \$40; TH3JR tri-band yagi, \$75; 2m Dingo vertical, \$30; ATN 420-440, 15 mtrs yagi, \$55 (unused). Reg VK3KX, QTHR. Ph. (03) 652 8260 bus. (03) 499 4200 KAH.

Kenwood TS820 Mic and Key, \$490; FRG7, \$215, all brand new condition with handbooks and cartons; TH3 JNR, \$85; Ken rotator and indicator, \$90; three Hills tower sections with winch and base, \$50. Phone (02) 419 4948.

FT200 Txcr, excl. cond. no mods, incl. matching power supply, manual, mic, spare tubes and leads, \$340. VK2QDE. Phone (043) 92 4900.

Drake TXC Transmitter and RAC Receiver, complete with interconnecting leads, power supply and manual, \$750. VK6BV, QTHR.

National DR60 Comm. Rx, \$350; Ten Tec Argonaut 509 Txcr., \$300; 12V 10A home made overload prot. ps. 70V; Leader PL4885 SWR pwr. met. 70V; Leader LDM815 dip. met. 70V; Hidaka multi-b. trap ver. V3-41 V5-80K-R, \$50; Yaseu 210.158400mhz antennas, \$50; RA1C LD-60A/70A balun, \$30; Hi Mounting 1000W 500 Hz, \$20; 80m receiver with case, manuals, etc., \$50; 80m 30W linear, exp. kit \$25. Sell separately or the lot for \$1000. VK4NZQ, QTHR. Phone (07) 379 7586.

Swan 300 Txcr, CW tone osc., power supply, mic and stand, int./ext. speakers, manual; Kyoritsu SWR meter, KW E-2005 match, \$400 the lot. VK3AXQ, QTHR. Phone (03) 619 2005.

FTV-650 Transceiver, 6m, in good operating condition, \$125; FT-227R 2m Tx/Rx, in good condition, \$229. VK6BSE, Phone (03) 277 0690.

FT101ZB, fitted WARC bands, fan, DC converter, FM model; also Yaseu desk mike, YD148, used 2 months, c/w instruction, wiring guarantee, \$900. Harry VK2EP, QTHR.

RTTY Siemens Model 100, perfect cond. with keyboard, \$250; printers teletype 50 baud sync. motor, rotating head, no keyboard, suit SWL or computer, c/w 110V transformer, \$50. Macdonald, Vic. Phone (03) 426 1233.

FB321 UHF, FM Txcrv, amateur band, complete with meter and mobile bracket, modified to fit the M1 Macdonald repealer and fitted with a rocking armature mic. insert, \$210 ONO. Phone (03) 781 3646.

Yaseu FT701EE AC-DC, cooling fan, attached G3LL speech clipper and SWR meter, spare new knale and driver tubes, maintenance handbook, all good cond., \$525. VK3AMC, QTHR. Phone (03) 692 9036.

FT200, original condition, 1 owner, some spares, handbook, \$195. VK2BHO. Phone (042) 92 2142.

Ham Shack Clean-Out - Moving: SSVT - monitor, converter, camera, tripod, tape deck, cables, tape, computer, etc. \$155; ATC: ARS: Ham shack SB200 80-10m, 1.2 kW, 4805; Arlens tri-band beam (10-15-20), 6 element on 40' boom, 14 dB gain-25 dB, F/8-55 dB F/8, very big and very strong, almost new, \$485; Rotator Ham IV with 100' cable, \$240; Dummy load, 1 kW with oil, \$25; Phone patch, \$25; Coax relay 12V, \$15; Coax UR67/70, 125 mtrs RG58, 35c meter; RG58, 35c meter; 15 regulated continuous rated 4 amp, \$25 - 8 amp, \$65 - 25 amp, \$135; Tubes 6A85B (12V 6148), new \$5; Transistors VHF power 2N5588, \$3; 2N5590, \$4; 2N5591, \$4. All equipment and parts in exc. cond. VK2CK, QTHR. Phone (02) 78 2545.

Yaseu FT161, good condition, cables, mic, handbooks, etc., \$400. VK3ZF, QTHR. Phone (03) 435 1897.

Icom 725A HF Txcrv, purchased Oct. 81, still under warranty, \$1050. VK3KCV/NCV, QTHR. Phone (08) 43 9227.

Army Technical Manuals, Qty. 37, covering many items e.g. Amp. RF No. 1; Reception Set No. 4; AC supply, No. 22; 155; ATC: ARS: Ham shack SB200 80-10m, 1.2 kW, 4805; Arlens tri-band beam (10-15-20), 6 element on 40' boom, 14 dB gain-25 dB, F/8-55 dB F/8, very big and very strong, almost new, \$485; Rotator Ham IV with 100' cable, \$240; Dummy load, 1 kW with oil, \$25; Phone patch, \$25; Coax relay 12V, \$15; Coax UR67/70, 125 mtrs RG58, 35c meter; RG58, 35c meter; 15 regulated continuous rated 4 amp, \$25 - 8 amp, \$65 - 25 amp, \$135; Tubes 6A85B (12V 6148), new \$5; Transistors VHF power 2N5588, \$3; 2N5590, \$4; 2N5591, \$4. All equipment and parts in exc. cond. VK2CK, QTHR. Phone (02) 78 2545.

KLM KT 34A Broadband Tribander, with two driven elements, compact and easily dismantled, with approx. 100 ft. 52 ohm coax plus 40 m of telescoping 4 sect. tower, \$200; Cowi gill motor for beam rotation with power supply and indicator unit, \$35; Reg. VTM with HV probe, \$35; Motorola scope (FAR) Aug. 74), with 2 tone oscillator, \$25; ARS: Ham shack SB200 80-10m, 1.2 kW, 4805; Arlens tri-band beam (10-15-20), 6 element on 40' boom, 14 dB gain-25 dB, F/8-55 dB F/8, very big and very strong, almost new, \$485; Rotator Ham IV with 100' cable, \$240; Dummy load, 1 kW with oil, \$25; Phone patch, \$25; Coax relay 12V, \$15; Coax UR67/70, 125 mtrs RG58, 35c meter; RG58, 35c meter; 15 regulated continuous rated 4 amp, \$25 - 8 amp, \$65 - 25 amp, \$135; Tubes 6A85B (12V 6148), new \$5; Transistors VHF power 2N5588, \$3; 2N5590, \$4; 2N5591, \$4. All equipment and parts in exc. cond. VK2CK, QTHR. Phone (02) 78 2545.

Shack Clearance - Urgent. All prices ONO. Power transformer, 18V 30 amp, \$8; Bell 80-10 metres mobile whip with adapters and roof racks, \$95; 5 mtrs 100W 500 Hz, \$20; 80m receiver with case, manuals, etc., \$50; 80m 30W linear, exp. kit \$25. Sell separately or the lot for \$1000. VK4NZQ, QTHR. Phone (07) 379 7586.

Kenwood TS 120B, in as new cond., with very little use, avail. with original packing and manuals, \$490. John VK3DGF, QTHR. Phone (059) 82 5547 AH.

FT7B, DC supply, external VFO, will not separate, \$338 ONO; Swan 3500, g.c., \$300 ONO; ARS Rxcrv, good working cond., \$180 ONO; Freq. meter SCR-211, \$40 ONO; 18 AVQ trap vertical, \$80 ONO; Premier 2 metre Txcrv, converted ex taxi phone, \$60 ONO. For more details contact Gordon VK4KAB, QTHR. Phone (07) 285 2001.

Transmitter/Receiver Type 182, in good condition, with 12V DC/DC converter and circulator, \$180. Aircraft band Tx/Rx Type ARCT, 11B-150 MHz, 24V DC Input, in good condition, \$25. VK2ZHS, QTHR. Phone (02) 59 5290.

TS202B, with added DC power supply and xtal CW filter, including MC50 desk mike, handbook, etc. Leo VK3ADP, Phone (03) 31 7479 (Ballarat) AH.

JLC X1300 Dig. FM Scanning Rx, with 15 memory chann., ac. cond., with service manual, \$390. Yenda, M.S.W. Phone (069) 63 6944.

Kenwood TS 120V, \$425 ONO. Bill Palmer VK3OIR, with 12V DC/DC converter and circulator, \$180. Phone (053) 32 3441.

IC-22A 2m FM Txcrv, good cond., still in orig. box, handbooks and mounting bracket included, ch's 2, 4, 8 & 40, 50 simplex, \$150 ONO. Ph. Neil (03) 459 8445.

Converted Electrophone CB-550, costs 28.25-28.45 with 7 KC slider, \$200; also 100W bi-linear and 10 metre whip antenna Leana TW-232 power mike, \$30. VK3AOT, QTHR. Phone (051) 87 1434.

Andrews Communications Systems

GOOD NEWS FROM JAPAN

Yes, Lee has returned from Tokyo with heaps of Specials!



ICOM IC-720A
\$1,175 Our new regular price

Our ICOM has 12 months warranty.

INTRODUCING THE NEW IC-505

Portable/mobile/base all-mode
3W/10W 50-54 MHz Transceiver **\$425**
IC-AT 500 Tuner **\$469**
IC-2KL Linear **\$1499**



We will better any genuine advertised price on our **YAESU** gear.

FT-ONE	\$1775	FRG-7700SW	\$469
FL-2100Z	\$550	FRG-7700 full cov	\$499
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